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Parts Makers Are Getting Ready for Better Business

M. A. M. A. convention shows that they will seek profits through a better knowledge of the jobber, more efficient marketing, closer scanning of credits, and greater exports.

By Norman G. Shidle

PARTS and accessory makers are planning

To scan credits more closely than ever before.

To so adjust relationships and contracts with their customers, the vehicle builders, as to permit more stable production schedules and more economical manufacturing in parts and accessory factories.

To find out more about distribution of replacement items and to utilize jobbers of various kinds to better advantage than in the past.

To get a profit on the sale of original equipment units.

To increase foreign trade activities.

These were the outstanding thoughts developed at the annual fall convention of the Motor and Accessory Manufacturers' Association held in Cleveland, Oct. 15-18.

Lively arguments took place as regards jobber distribution methods, some contending that the jobber should be considered primarily as a distributing agent and others claiming that he can and should be developed into a merchandiser. Those holding the former opinion, however, were in a majority. Most of the manufacturers who had studied the problem carefully seemed to feel that merchandising is primarily their own function; that the jobber may aid them in performing it, but that in the end it is their job to sell their own goods in one way or another.

The problems arising out of credits were handled without gloves and there could be noted in the opinions expressed by the credit men a general trend toward more detailed study of risks and toward less leniency in dealing with customers in such serious financial difficulties as to render final success unlikely.

Nearly 200 men attended the convention and at least 125 sat in on practically every session. The attendance was comprised chiefly of sales managers, export managers, credit men and other executives interested in the specific problems under consideration, although a number of company heads were present and took part in the discussions.

PROFITS have been unsatisfactory in the parts business for some time and the need for readjustment of policies to provide better dividends was emphasized throughout the gathering. Clear recognition was shown of the ineffectiveness of volume alone to produce profits. The parts and accessory men very definitely seem to have ceased to "worship at the shrine of volume" and now are devoting their time to examination of other phases of their business, seeking ways and means of cutting corners and improving methods.

Analyzing the meeting as a whole, it may be said that the parts men had four points of relationship with the vehicle manufacturers which are not entirely satisfactory at present:

1. Releases and cancellations of orders.
2. Prices for original equipment.
3. New models.
4. Unearned discounts.

Practically all of the executives at the meeting were a unit in their desire for better cooperation from

vehicle builders as regards living up to release promises. While they realize that the car maker's business varies and that a reasonable amount of divergence from original requirements always will be necessary, most of them believe that the wide fluctuations common at present can and should be reduced materially.

Little new light was thrown on the question of original equipment prices, but several parts manufacturers said in informal conversations that they have reached the point where they are determined to make profits on this sort of business or stop doing it.

New models were mentioned only casually in connection with other subjects, but the opinion was expressed that fewer changes would simplify considerably the parts maker's production and distribution problems.

It is common practice for customers to take discounts which they have not earned by payment within the specified time, according to several men who spoke at the credit sessions. Because such a practice seems to them utterly unfair, the credit men were practically unanimous in condemning it.

G. Brewer Griffin, president of the M. & A. M. A., said frankly that buyers of parts and accessories will have to release orders definitely further in advance than has been customary in the past or accept one of two alternatives: frequent meeting between suppliers and customers for exchange of information for the guidance of both; or a certain protective arrangement for the supplier, such as a definite rate of monthly production based upon quarterly agreed schedules and 90 days advance notice and release.

Mr. Griffin's statements were specific and clear. "It is to be hoped," he said, "that buyers of parts and accessories will shortly definitely order and release much further ahead than has been current practice recently. If this is not done, then there are only two other courses to pursue:

"a. Arrange frequent meetings, say once or twice monthly, between the sales managers of both the supplier and

G. Brewer Griffin, manager, automotive division, Westinghouse Electric & Mfg. Co., and president of the M. A. M. A.

customer at which will be present production managers of both interests, to exchange knowledge, views and opinions as to the outlook of the industry in general and the customer's place in it, specifically for guidance of both parties.

"Some of us are already doing something of this nature and to good advantage. It is more or less negative as a protection to the supplier on his loss from variations in production, but makes for better relationship and an understanding of and sympathy with each others problems and needs. So is confidence built up.

"Or b. A less sympathetic but more certain protective arrangement for the supplier—such as a definite rate of monthly production based upon quarterly agreed schedules, and 90-days advance notice and release. Under which arrangement a definite price would be fixed as a base, which price would remain fixed for any one agreed quarter and demand would be allowed to fluctuate up or down 15 per cent on 60-days advance notice of such change, without affecting sales price, but if the fluctuation is greater, or the time of notice less, then the supplier shall be entitled and allowed to advance his billing price to cover any excess cost due to such changes and continue so to bill until excess is absorbed."

Volume Theory Discarded

The theory of "volume at any price" received severe criticism from the M. & A. M. A. president. He urged that it be discarded by suppliers and that the profits of the industry as a whole be spread more evenly upon a productive schedule which will prevent wild surges from feast to famine. "Volume alone does not assure low costs," he said, "however well operated is the manufacturing enterprise, unless the spread between minimum and maximum monthly output is reduced to comparatively narrow limits."

"Buying has been low in volume—commonly called hand to mouth. This may assure safety, but it does not stimulate industry since the producer of parts has been expected to accept—and in most cases has accepted to his own detriment or loss—such business at about or below the prices formerly current in a highly competitive market when buying was large in volume."

Although stating his belief in full service to customers and in such trade stimulants as research, advertising, shows, etc., Mr. Griffin said definitely that marketing costs have risen too high. "There is too small a difference between total cost and the price obtained for the goods," he said, "and this margin has become steadily less for several years past in most lines such as ours."

Pointing out that the present year will be the second largest in the history of the industry, Alfred Reeves, general manager, National Automobile Chamber of Commerce, speaking on the opening day of the convention, expressed optimism as regards business prospects for next year. There is no cause for disappointment over the showing to the industry during 1924, Mr. Reeves said, and it can be counted as successful if for no other reason than that it taught the industry two important things: it showed more clearly than ever before what is the actual absorption capacity and brought about a better balance between production and sales.

For only the third time in 25 years, Mr. Reeves showed, has the automobile industry failed to break a production record. In 1918, schedules fell off because of the war, while the industry suffered in 1921 along with all other lines of business.

The convention was welcomed to Cleveland by City Manager W. R. Hopkins, who predicted that good business conditions will prevail during the next five years. Richard F. Grant, president, U. S. Chamber of Commerce, criticised business men for lack of interest in national problems and urged individual activity on the part of those engaged in management when help is needed in finding the right answer to important national questions.

Social events during the gathering included a dinner-dance on Wednesday evening, a stag smoker of unusual interest on Friday evening, and an all-day golf tournament at the Kirtland Country Club on Saturday.

Three Speakers at Credit Sessions

A. H. Fagan outlined new activities of M. A. M. A. credit department

J. K. Williss, credit manager, Black & Decker Mfg. Co., told the value of contact with customers

J. L. Thompson, credit manager, Yale & Towne Mfg. Co., discussed foreign sales

Parts Makers Urged to Scan Credit Risks More Closely

Vehicle builders in financial trouble in first 9 months of 1924 have liabilities of $16,000,000, Ludwig Kemper says. J. L. Thompson tells how to handle foreign credits. Unearned discounts discussed.

PARTS companies are going to tighten up on credits all along the line, if the opinions expressed at the credit sessions are carried into action. Several speakers stated in no uncertain terms their belief that creditors should act more quickly than has been their habit in the past when a company gets into financial difficulties. "We have been spending too much time fooling along with the weak sisters" was the way one man put it. He followed up with the statement that it would be better to close up companies when they first get into trouble rather than to play along through two or three reorganizations at the end of which the parts makers usually get little or nothing.

It was generally agreed that more care should be taken in granting credits in the first place and that the parts credit man should keep in touch with the purchasing and production departments of the vehicle manufacturers as well as with the financial men of those organizations. The purpose of such contacts would be to guard against granting of credits to companies whose inventories are unbalanced or obsolescent.

With the thought of cutting down credit risks, salesmen for parts and accessory organizations are being urged to remember at all times that they are selling merchandise —not credit terms.

A balance sheet, while necessary to a proper analysis of a company as a credit risk, is far from being sufficient basis for judgment in the estimation of most of the credit men. One speaker said that he didn't believe that credit should be granted to a company which would not furnish a financial statement, but that much other investigation should be completed before extending credit. This thought was emphasized by nearly everyone who took part in the discussion as well as by the speakers on the program.

Debate on Credit Department Location

A lively debate followed the suggestion made by Ludwig Kemper that the credit office of the M. & A. M. A. be moved to Detroit. Some of the credit men favor Cleveland as the location, while others desire that it remain at its present location in New York. Action on this question will be taken later by the M. & A. M. A. board of directors, possibly after a referendum of the entire organization.

Emphasis was laid on the fact that the size of the concern is not necessarily a gage of its stability. Some of the smaller outfits, it was claimed, are excellent credit risks.

While feeling quite strongly that credit methods should

be applied more carefully in the future, there is no tendency on the parts of the supply representatives to act hastily without the full facts of the case before them. The prevalence of rumors without any foundation whatever was recognized and the credit men were cautioned against spreading gossip, the basis of which they did not know.

The credit men were a unit in opposing the practice which has become common with a good many customers of taking unearned discounts and a strong sentiment against this custom was expressed.

Employment of new field men, extension of the jobber credit reporting service and consideration of a service on foreign credits were the new activities of the M. & A. M. A.

Father and Son

Alfred Reeves, general manager, N. A. C. C., lays down the law to his son Clifford, now a member of the M. A. M. A. educational department

credit department announced by A. H. Fagan who outlined the development of the M. & A. M. A. credit work.

The number of field men to be put on has not yet been decided, but the probabilities are that one man will be added to cover the Detroit territory and another for Cleveland and the adjacent areas.

M. L. Heminway, general manager of the M. & A. M. A. told of the reawakening of interest and support which has occurred in the organization in recent months and said that further development of its constructive work was certain through increased personal contact between members and the staff men.

More careful handling of credits, both domestic and foreign, was urged at both credit sessions on Friday. M. A. Moynihan, Gemmer Manufacturing Co. presided over the morning meeting, while R. S. Harvey, Rees Manufacturing Co. was in the chair in the afternoon. Ludwig Kemper, Midland Steel Products Co., told some straight facts about the credit situation among passenger car and truck companies, and said that companies which have gotten into financial difficulties during the first nine months of 1924 had liabilities amounting to approximately $16,000,000.

J. L. Thompson, Yale & Towne Manufacturing Co. pointed out that handling foreign credits is very much like doing the same job domestically, the chief differences being time and distance. J. K. Willis, Black & Decker Manufacturing Co., urged the development of closer relationship between buyers and sellers and pleaded for better cooperation of M. & A. M. A. members in filling in details of credit experience questionnaires.

Contact Helps Collections

—*J. K. Williss*

PERSONAL contact with customers makes the credit man's task much easier, according to J. K. Williss, Black & Decker Manufacturing Co. "It is much easier to collect money or obtain information if you can write to your customer and call him Bill Smith," Mr. Williss said, "than it is to write for the attention of the president or some other official."

In many collection trips, Mr. Williss said, he has had to ask for money on only one occasion. Usually a few minutes' conversation on some entirely unrelated topic winds up with a remark from the customer, "I suppose you came down to see about our account with you." Then, Mr. Williss said, "I have the chance to go ahead and 'speak my piece.'"

Emphasing the value of exchanging credit information, Mr. Williss made a plea for more effective cooperation among M. & A. M. A. members in sending in the data needed upon which to base credit information. He outlined the workings of the M. & A. M. A. credit grading committee and going on to advocate a uniform accounting system for jobbers, he said in part:

"We can apply that particularly to the accounting end of the jobber's business. There are a number of jobbers on whom I have called whom I have been able to help in the matter of suggestions as to how to handle certain items of accounting. Not that I am an accountant at all, but they have asked such direct questions as to how to handle Trade Acceptances, or how to follow up their collections and slow accounts, and have taken my suggestions. I am certain that they are eager for information.

"I should like to see at some time a standardized system of accounting, similar to those systems which are advanced by various bookkeeping machine companies, with examples and instructions, and of sufficiently flexible nature to be applied to the little account rated five or ten thousand dollars or expanded to meet the requirements of a three hundred to five hundred thousand dollar concern. Certainly anything which we can do to better the jobbers' condition in showing him how to keep accounts, or cut his overhead, or to properly handle his finances, is going to be our benefit. A matter of this kind would necessarily have to be passed on to the jobber by personal contact."

Judging Foreign Credit Risks

—*J. L. Thompson*

EXPORT business came to the front at various times throughout the convention, not alone in discussion of export merchandising methods but as well in the credit and finance talks. The subject of export credits, discussed at the general credit session on Friday, was analyzed by J. L. Thompson, credit manager of the Yale & Towne Mfg. Co. He developed the theme that so much credit information has become available that manufacturers are now in "position to grant terms to reliable companies in other countries.

"Handling foreign credits is practically no different from handling domestic credits," he said. "The two ele-

ments, time and distance, constitute the only difference or handicap. You are farther away from your customer and it takes longer to communicate with him, just as it takes longer for your goods to reach the buyer."

But, Mr. Thompson explained, overseas credit information can be obtained from a variety of sources.

"There is no good reason for the American exporter refusing to ship goods on credit to a foreign buyer when that credit is good. You can get the facts on which to judge that credit. Most buyers are honest. There are crooks everywhere, even in the United States. Fortunately, they are in the minority. There is no good reason why you should demand cash in New York in advance, or against shipping documents from your foreign buyers than from your domestic buyer, if the credit of both is good."

Foreign Time Sales

After outlining various sources of this information, which included the credit department of the M. & A. M. A., Thompson discussed sales terms, saying:

"Terms are not the same in all countries. Usually they are different for each country and each country may have variations of terms for the same period, depending upon the financial responsibility or the requirements of the customer. One country expects and asks for draft terms. Another requires and insists on an open book account. However, it is preferable to have the terms on a draft basis, as the draft provides for a definite date of payment and is a bankable instrument.

"Drafts usually are drawn at 30, 60, 90 or 120 days' sight, unless they are drawn at date and then the terms are 30, 60, 90 or 120 and, sometimes, though rarely, 150 days' date. The date draft gives a definite known day and for that reason is preferable over a sight draft."

Answering various questions concerning details of export credit methods, Mr. Thompson said that American firms must conform with the customs of the countries to which they are selling goods. Conditions must be taken very much as they are found. If you don't like the conditions, Mr. Thompson advised, don't try to sell to that particular country.

Less troubles in connection with rejected orders occur in foreign shipments, he said, than in domestic selling.

Credit Losses Should Be Cut

—Ludwig Kemper

Mr. Kemper said in part:

"The records show that during the year 1923 the manufacturers of motor vehicles, who got into financial difficulties, have liabilities amounting to over $14,000,000 and during the first nine months of 1924, an additional number of manufacturers got into trouble, whose liabilities amounted to approximately $16,000,000. These liabilities included bank loans as well as merchandise accounts.

"These liabilities, of course, do not mean a total loss to the creditors, but we all know that a large percentage of this amount will never be collected and we are fairly safe in assuming that the merchandise creditors during 1923 and 1924 will take losses aggregating from eight to ten million dollars for each one of these years. These losses will be taken either now or eventually when bonds, notes, stocks or other securities taken in part settlement of these liabilities will have proved themselves either entirely worthless or nearly so.

"Considering that this loss is taken on a volume of business amounting to approximately $180,000,000, we must realize that this business as a whole was taken at little or no profit as the selling prices today do not allow for the large profits necessary to absorb such a loss, and still retain a substantial profit.

"We will never be able to conduct our business without taking some risks and suffering some losses, but we should be able to materially reduce the losses disclosed by the above figures.

"A single balance sheet or earning statement, while of interest, is not sufficient to enable us to form an opinion as to a company's financial standing. These figures should be available for a period of years so that a comparison will show whether the company is improving its financial standing or is sliding down hill. To be able to come to a better conclusion we should also know—

1st. Business policy of the company.
2nd. Whether or not sufficient amounts for depreciation have been taken into its costs.
3rd. Whether its merchandising policy is sound.
4th. Whether it follows a conservative policy in regard to expense or at times are more or less doubtful expenses capitalized.

"Unfortunately, for the parts trade as a whole, competition is so keen that it has often entered the credit department and at times companies will take business away from competitors by granting credit terms which no sane man should give. There is no place for competition in the credit department.

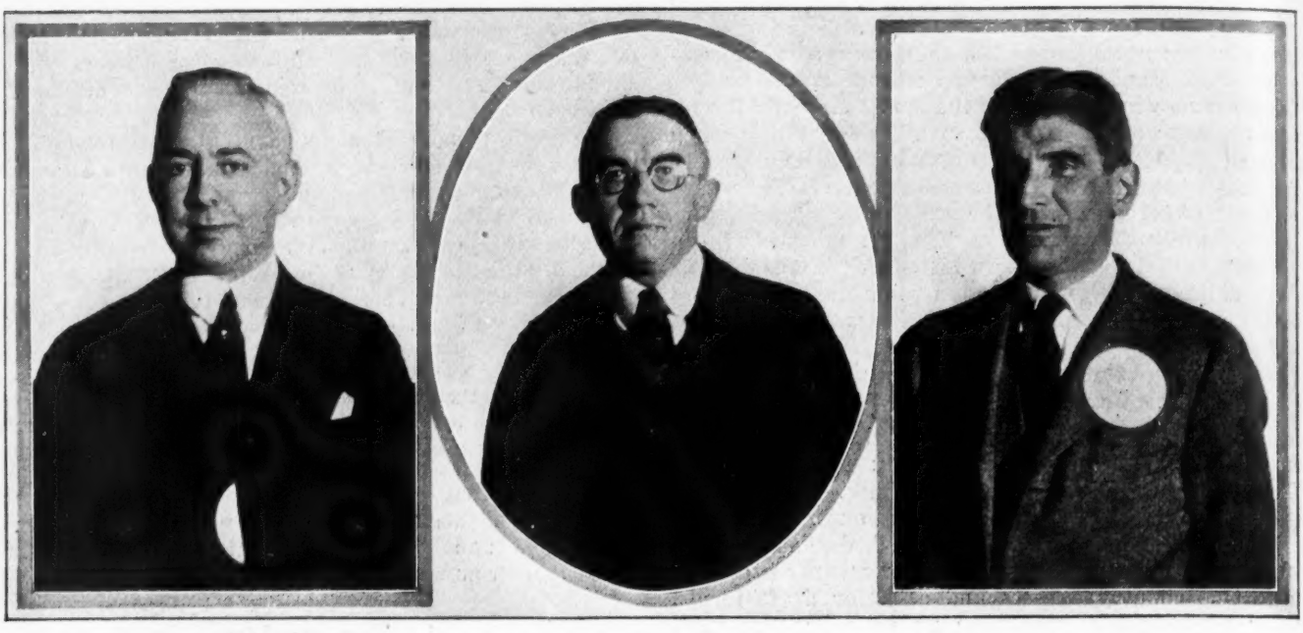
"Any single company or individual creditman cannot hope to remedy this situation but cooperation of all the parts makers can greatly improve the existing condition.

"We have the machinery right at hand to do this work, if we will only fix it up and put it into working order so that it will function properly. The M. & A. M. Association has as its members a larger percentage of the parts makers of this country, and it can do a great service to the industry if it will take hold of this problem and organize the credit division to give the proper service."

Two Speakers

Neal G. Adair, M. A. M. A. show manager, explains the new show plans to J. H. Mehan, manager, Research Club. Mr. Mehan caused some lively discussion by his speech on jobber-manufacturer relationships

Presiding Chairmen at M. A. M. A. Sessions



R. S. Harvey, vice-president, Rees Mfg. Co.

M. A. Moynihan, treasurer, Gemmer Mfg. Co.

B. M. Asch, president, Asch & Co., Inc.

How to Use the Jobber in Distributing Parts and Accessories

Performs real service but must be accepted as he is, according to J. H. Mehan. C. A. Musselman urges better understanding between jobbers and manufacturers. Specialty distributors have place.

THE jobber must be taken as he is. He cannot be changed to any material extent, but is capable of performing a real service in the distribution of parts and accessories if the manufacturer is willing to use him properly. The jobber should be considered rather as a distribution factor than as a merchandiser. These were some of the chief thoughts developed at the merchandising sessions held on Tuesday. E. P. Chalfant, Gill Piston Ring Co., presided.

It was generally agreed that the specialty jobber has a definite place in the distribution scheme in handling technical articles requiring special knowledge for installation and service and in marketing those items which have not yet been able to find a place on the shelves of the general jobbing houses. Entire agreement was not reached on these points; some disagreed quite strongly with the idea that the jobber cannot be made into a real merchandiser.

Getting Together

Better cooperation between jobbers and manufacturers was urged and specific means of achieving such cooperation were outlined. One method proposed was that of getting across to the jobber salesmen better than has been done in the past the story of the merchandise he has to sell. Simplification of literature and of talks by factory men to dealer salesmen was urged very strongly.

Discussion of advertising as related to jobber-manufacturer relationships indicated that the dealer is the most important link in the distribution chain and that he must be sold if the product is to be put over properly.

"Take Jobbers as They Are"
—J. H. Mehan

IF the parts and accessory manufacturer is going to use jobbers in distributing his product, he must take them as they are—not as they ought to be. He is bound to fail if he "marries them to reform them." This was the chief point of the message brought to the parts makers by J. H. Mehan, manager, Research Club. "If you decide to use jobbers," Mr. Mehan said, "*use them.* Don't change or threaten to change your policy every few months."

Mr. Mehan urged the manufacturers to give more attention to finding ways of getting their products across with the jobbing field as it stands today and less in trying to put over hand-made merchandising plans under the guise of education. Less damning and more mutual understanding would be very beneficial, he said, both to jobbers and manufacturers.

Most jobbers, he continued, *sell* about twenty lines and *handle* about a thousand. Every manufacturer wants to have his product one of the twenty key lines. Obviously all can't be successful. To be a key line, Mr. Mehan claims, a product must have the following characteristics:

1. Permanence.

2. Volume; a minimum of $1,000 per year per salesman is necessary.
3. Factory momentum, generated by proper production, advertising and merchandising plans.
4. Adequate margin of profit.

Give the jobber these things and the product is likely to be one of his leaders.

Other suggestions made by Mr. Mehan as means of capturing the interest and cooperation of the jobber included:

1. Treating the jobber as a distribution channel rather than as a customer.
2. Recognizing the value of stable jobbers who plod along making profits steadily and not placing entire reliance on a distributor simply because he is a "live wire."
3. Permitting return of unsold merchandise under proper restrictions.
4. Granting longer credit terms so that the jobber will not have to pay his own bills in 10 days when he has to make most of his collections on a 65 to 90 day basis.
5. Keeping types and models as permanent as possible.
6. Helping the jobber to reduce his shipping room costs.
7. Sending only trained speakers to address jobber salesmen's meeting. Thick-tongued, uninteresting talkers hurt rather than stimulate sales.

Mr. Mehan urged reduction of marketing costs all along the line and suggested that the jobber's purchasing expense might be reduced by some system of regional exhibits, along the lines of the sectional shows now being fostered by the M. & A. M. A. show committee, or by the establishment of a central market at which gatherings would be held at specified times.

Jobber-Manufacturer Relationships

—*C. A. Musselman*

"THERE is a great valley separating the parts manufacturer and the wholesaler. It can be bridged by better understanding so that the industry will have a smooth level road to travel instead of a hilly, rough one." The jobber is a distributing agent rather than a merchandiser. These were the thoughts running through the talk on dealer-manufacturer relationships made by C. A. Musselman, president and general manager of the Class Journal Co. and The Chilton Co.

Pointing out the various points of difference arising between jobbers and manufacturers, Mr. Musselman asked the question, "Who is wrong?" and answered it by saying, "Neither is wrong and both are." Amplifying this statement, he went on:

"There is no question that the manufacturer gives a large discount to the jobber and receives in return very little effort in the promotion of sales. On the other hand, the jobber has an expensive business to conduct and works on a narrow margin because he gives most of his discount to the dealers. It is for this reason that he has difficulty in making a profit."

Continuing his discussion, Mr. Musselman said in part:

"Indictment of the jobbing trade by some manufacturers has failed to take into consideration the jobber's greatest service to the industry—one that has not been adequately performed by any other agency. It is the establishment and maintenance of intimate and constant contact with about 100,000 retail trade units that serve more than 15,000,000 car owners.

"On the whole, the jobbing trade still dominates the accessory and supply field, and will continue to do so as long as manufacturers are unable to afford a very elaborate personal distribution agency necessary to reach nearly 100,000 retail trade units.

"Probably the antagonism which exists between manufacturers and jobbers is the direct result of a misunderstanding of the real relationship between the two interests and the function of the jobber. Most manufacturers consider that the jobber is a necessary evil because of a universal trade prejudice.

"The friction existing between the manufacturer and distributor has long existed, and during the past twenty-five years in the automobile business I have frequently heard both sides of the story. Summed up the main complaints are these: The manufacturer states that he gives a larger discount to the jobber than to anyone else, but that the plan is wrong because the jobber does not create a demand for his line. The jobber says: 'I have a very expensive business to conduct and the manufacturer does not give me any cooperation and not a large enough discount to let me live.'

"The most direct way to increase distribution volume is to sell through branches, which are expensive both to open and maintain. Large stocks have to be carried, capital is tied up, the turnover is slow and sales expenses are usually excessive.

"Number 2 is to put into the field a sales force direct from the factory, which will sell direct to the dealer.

"The third plan is to utilize the specialty distributor. While he does not take the place of the general jobber, because as a rule his capital investment is much smaller and the territory he covers more local, nevertheless the fact that he carries fewer lines enables him to do more actual sales promotion work, and frequently these specialty distributors meet the requirements of the manufacturer and serve him well, especially in the initial sales promotion work of a maker distributing a new product.

"The fourth and last method of distribution which I will speak of is what is commonly called 'mail-order.'

C. A. Musselman, president, Chilton Co. and Class Journal Co., offers a smoke to E. P. Chalfant, chairman of the board, Gill Mfg. Co. Mr. Musselman, in a talk at the merchandising session, told how better cooperation may be achieved between manufacturers and jobbers. Mr. Chalfant presided at several sessions, and was prominent in the discussions

There are some few outstanding cases in the industry where business has been built up via the mail-order route, but these are few and far between and at present, in a highly competitive field, it is difficult to merchandise a product through the mails.

"What are the conclusions we reach when we study the four best known and most effective plans of distribution? It would seem that the jobber is necessary, and this being so the manufacturers — collectively and individually—

M. L. Hemingway, general manager, M. A. M. A.

should not consider him as an evil influence, but as one of the best sources of outlet, and develop him so that he will become cooperative in spirit and reality, so that the antagonism which he has for the maker will die away.

"This prompts me to offer the suggestion that the Motor and Accessory Manufacturers Association may advantageously appoint a committee to confer with jobbers, to study their problems and survey their fields. If this committee were made up of broad-minded men with diplomatic instincts, your association could in one year largely change the mental attitude of the distributors as well as your own members, and instead of classifying the jobber as a 'necessary evil,' you could look upon him as being a genuine cooperator.

"Don't expect the jobber to push any one line. We frequently hear the statement made: 'I am going to cut out the jobber because his salesmen are nothing but order-takers.' It is not to be expected that a man carrying a catalog containing references to from 1000 to 2500 articles can specialize on any one or several, and it is not logical to expect jobber salesmen to be much other than order-takers.

"Your chain of success has three definite links—production, merchandising plans, and sales execution.

"The question of jobber cooperation and advertising is largely determined by the manufacturer's attitude toward the jobber. There is no way of computing the fortunes which are wasted every year for printed matter which is sent to the jobber for distribution and which eventually becomes scrap paper.

"If the maker wants jobber cooperation in advertising, he should ascertain from the jobber what sort of literature he wants, how he expects to distribute it, and make his plans fit the plans of the wholesaler instead of sending a lot of general printed matter to unsympathetic recipients. Again we trace this difficulty to the lack of understanding between the maker and the jobber."

Following his discussion of jobber-manufacturer problems, Mr. Musselman was urged by Chairman Chalfant and others to outline briefly how advertising could be used to greater advantage by parts and accessory manufacturers to aid in the distribution of their products.

Replying to these requests, Mr. Musselman suggested, as the first step, that manufacturers go to their jobbers and ask the latter what sort of advertising assistance they would like. Advertising can achieve its purpose only when properly used, he said, and the only way to make it of maximum benefit to the jobber is to ask the jobber "What do you want?" and then try to give it to him.

While urging that the jobbers' advice be followed, Mr. Musselman pointed out that under any circumstances a demand must be created for the product among dealers. Nothing worse can be said of a unit, he pointed out, than the words "I never heard of it." The dealer must be sold on the product if it is to get widespread distribution because the dealer is the strongest factor in influencing public buying of a very large number of automotive products. Particularly is the dealers' opinion likely to be accepted by the customer on items which are technical in character.

Mr. Musselman urged the use of newspaper advertising in local centers to tell the dealers where the nearest jobber is located from whom they can get the product.

He was emphatic in his statement that the worst advertising is that placed in general media to reach consumers before widespread distribution for the product has been obtained. His statement in this regard was confirmed by Mr. Chalfant who said that while certain of the well-known general media have been the making of many businesses, they have been the graveyard of a great many others.

Mr. Musselman pointed out that the immediate orders which may result from advertising in general media before national distribution has been obtained often create a false impression in the mind of the manufacturer. He goes forward with plant expansion and merchandising plans on the basis of these orders only to find a bit later that repeat orders—the basis of solid business—are not forthcoming because the dealers have not been sold on the product.

Discussing Mr. Musselman's talk one speaker urged the value of consumer advertising for certain products, while another said that one important point in getting jobber cooperation is to refrain from overstocking. Attention also was called to the need of the parts manufacturer's sales organization doing more actual sales work than has been customary in the past. S. A. Fulton, of the Fulton Co., stated his belief that the manufacturer should stand behind his product from the time it is made until it is in the hands of a satisfied user.

Profits Come from Service

—*J. H. Shoemaker*

CAR manufacturers would serve their customers better if they were willing to pay to the parts maker a price which would permit him to realize a profit on original equipment business, said J. H. Shoemaker, distribution manager, Perfection Heater and Manufacturing Co. Some car makers, Mr. Shoemaker said, apparently expect parts manufacturers to supply them with their products from profits realized from the parts manufacturer's retail sales. They sometimes seem to forget that a dollar spent with the parts manufacturer for an article to be used as standard equipment would save the car buyer $5 on the price he would have to pay if he bought it through retail channels.

"When a better appreciation of that adage, 'he profits most who serves best,' is common," Mr. Shoemaker continued, "some car manufacturers are going to endear themselves to the buying public."

Specialty distributors are needed, he said, for products which require specialized knowledge for installation and continued service after they have been put into operation. The constant changes in car models, he pointed out, require so many deviations from the standard product of the parts manufacturer and make necessary such elaborate inventories and specification records that specialty organizations with the ability to apply technical knowledge have become a necessity in many lines.

Exhibits at Shows Increase

—Neal G. Adair

"THE automobile show is an agency for advertising, for creating acquaintance and good will, for discovering defects in a product and complaints regarding its service, for selling a product and keeping it sold," said Neal G. Adair, Show Manager of the M. & A. M. A. With this broad conception as a basis he told of the new show plans adopted by the M. & A. M. A. this year which include two special trade days at the New York and Chicago exhibits and the sanctioning of three new sectional shows in Cleveland, Kansas City and San Francisco. These three, together with the New York, Chicago and Boston exhibitions, in which M. & A. M. A. members previously have been exhibiting make a total of six sanctioned events this winter. Already M. & A. M. A. members have bought considerably more show space than last year, while a number of important representative companies are back in the show for the first time in many years.

All of the new shows sanctioned are big ones, Mr. Adair said, expertly managed and with good facilities for parts and accessories. It has not been possible, he pointed out, to cover these main distributing centers and still make it possible for a manufacturer to route an exhibit around the complete show circuit. "The only recourse," Mr. Adair said, "is for manufacturers to select the shows that will do them the most good and that can be most conveniently covered, unless by assigning the show work to a branch manager, distributor or field representative they can overcome the handicap of adjoining dates."

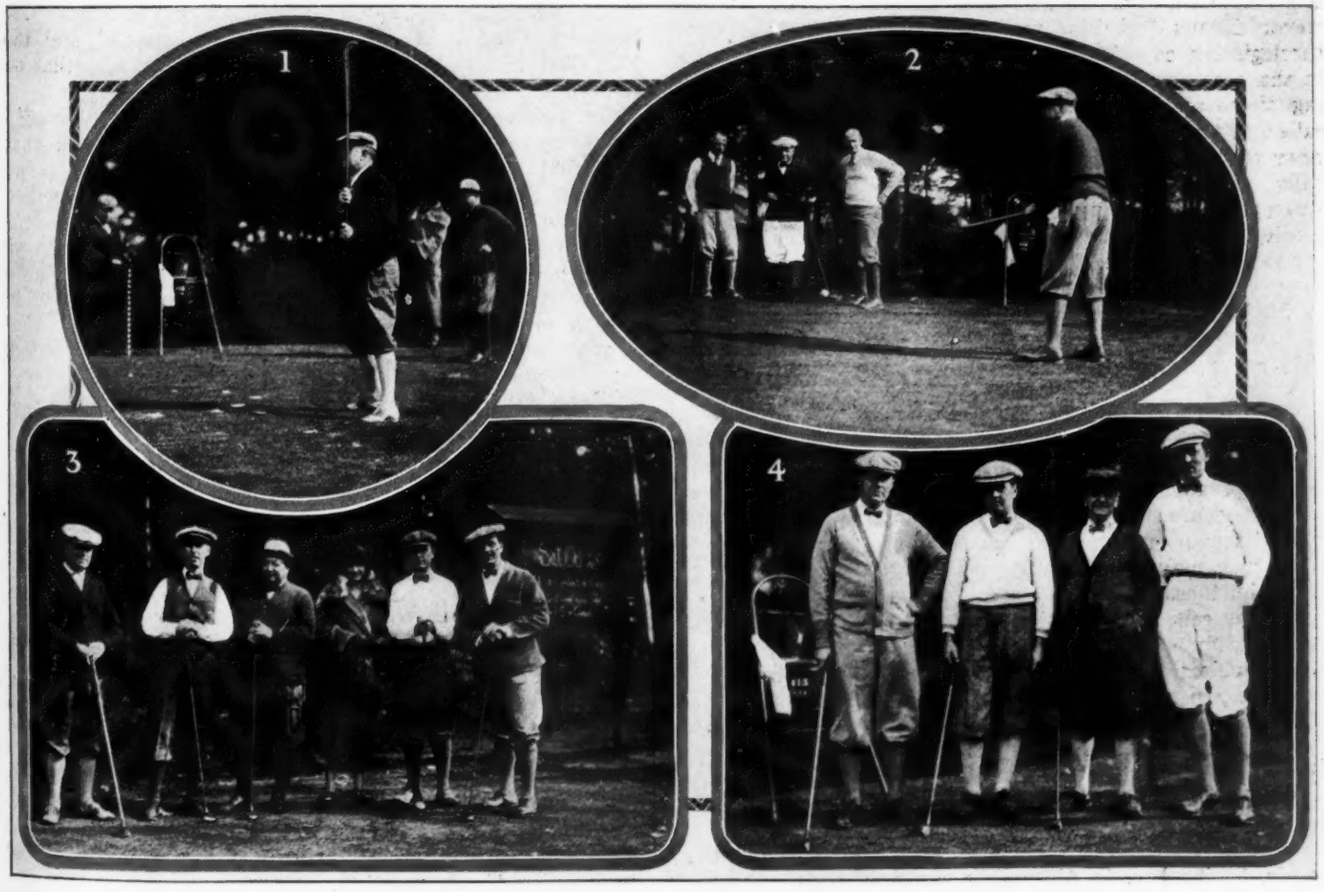
How to Interest Jobber Salesmen

—L. A. Safford

PARTS manufacturers must sell their product to the jobber salesmen as well as to the jobber's buyer if they are to get satisfactory distribution, according to L. A. Safford, vice-president, McQuay-Norris Manufacturing Co. "The jobber salesman is just like everybody else in the world in one basic thing," Mr. Safford said, "his necessity and desire to earn money." Consequently, Mr. Safford pointed out, it isn't strange that he frequently is more interested in those lines which give him good tools with which to work.

Complete selling material in catalogs, written clearly and presented simply is one important step in getting the cooperation of jobber salesmen, Mr. Safford stated. Such material should be prepared on the same basis as a story in a newspaper office—that the reader never has heard.

After the Work Was Over



1—L. F. Bonhoff, Jackson Steel Products Co. 2—E. P. Chalfant, Gill; J. K. Schnaitter, Willard; Julian Chase, directing editor of the Class Journal Co.; A. F. Strayer, U. S. L. & H. Co. 3—L. F. Bonhoff, Neal Adair, W. B. Jameson, Mrs. Bonhoff, O. C. Wagner, J. Ross Jenning. 4—J. C. Bolton, M. C. Hemingway, C. H. Gibney, E. W. Whittemore

Export Manager and Combination Agent Both Have Place in Export Selling

Parts and accessory producers must keep pace with car makers in foreign trade or valuable markets will be lost. Best means of merchandising must be determined in each individual case.

THAT overseas trade is rapidly being developed or extended by the companies manufacturing parts and equipment was well evidenced by the meeting devoted to foreign trade and in other references to it elsewhere in the convention. In response to the growing importance of the general automotive export business, the M. & A. M. A. now devotes one full meeting to the subject at each of its fall conventions, and this year, as was also the case at Boston in 1923, this meeting was well attended. Illustrative of the attendance and the interest was the statement of Chairman Ben Asch, as the meeting closed, that during the two hours of discussion not one person had left the room, so close was the attention given to the papers and talks.

The subject of the meeting was "The Foreign Trade Opportunity—How to Take Advantage of It," with papers by J. F. Kelly, Jr., export manager of the Electric Storage Battery Co., and H. L. Kraus, export sales agent. Kelly, whose paper was read by Herman Denster, secretary of the foreign trade committee, discussed development of this trade through the so-called "in-built" export department. Kraus told how the development might be done through the combination export manager, who functions in the same capacity for several companies. In considering these and allied topics, a number of speakers were called to the floor, including E. C. Steinacher, export manager of the Moto-Meter Co.; E. P. Chalfant of the Gill Mfg. Co.; George Bakewell, foreign traveler for the Champion Spark Plug Co.; W. H. Davidson of the Automotive Division, Bureau of Foreign and Domestic Commerce; Gordon Lee, former chief of the Automotive Division and present head of the Fageol Motor Co. of Ohio; L. M. Wainwright of the Diamond Chain Co. and George E. Quisenberry, editor of the *American Automobile* (Overseas Edition).

How to Run an Export Department

Mr. Kelly, emphasizing that car and truck manufacturers were obtaining an appreciable part of their business abroad, recommended that every company whose product commanded a sufficient volume of sales should have its own export department, saying that, as the car and truck makers were obtaining an appreciable part of their business abroad, so also should the parts makers. This was echoed by Mr. Kraus, who, however, offered the combination export manager as the solution of the export problem for companies whose potential volume was smaller. In a speech bristling with argument and fact, Mr. Kraus told of developing markets abroad, from Scandinavia to the Fiji Islands and from the Belgian Congo to the Dutch East Indies. He is opposed to the general sales manager attempting to handle export trade and declared that ten per cent of total sales should be sought abroad by the various M. & A. M. A. companies.

Mr. Steinacher, in discussing the first paper, stressed the necessity of export sales being handled by an export executive and told of various difficulties which must be avoided in overseas selling.

Mr. Chalfant made the point that foreign trade is approached in two ways by most manufacturers. On the one hand, many makers greatly under-estimate the possibilities of foreign selling and, because of having heard so much of the intricacies in overseas selling have failed to make the proper effort to obtain a splendid business. On the opposite side are others who, seeing how great is the population in various territories, imagine potential sales to be proportionately large and, accordingly, overestimate the possible volume of foreign business. He pointed out particularly that countries south of the equator, such as Australia, New Zealand, Argentina, South Africa and others, take a large part of our export motor business and, having seasons reversed to our own, do their buying when the normal demand at home has slackened off.

Best Markets Listed

The best markets for the equipment and accessory companies were described by Mr. Davidson as being Australia, New Zealand, the several territories of Latin America, South Africa, Scandinavia and, to an increasing extent, England. India, of course, should be covered and the Far East generally is increasing imports, except that on some lines Japan has slackened off.

Mr. Bakewell for some years has represented Champion as overseas traveler in many countries and said that manufacturers have several possible methods of doing business abroad. They should first decide which method to follow and then go strongly in the merchandising of their products in the selected markets. The decision as to method should be whether to leave the market open for general selling, to appoint a local representative, to send a salesman there, or to leave it to the export commission house. He recommended, if volume permitted, the sending of a company traveler to stay on the spot until all difficulties were overcome.

The jobber trade abroad, previously mentioned by several speakers, was brought strongly forward by Mr. Bakewell. The jobbing trade, now strongly developed in at least all the important territories, is the potential buyer of our products and it is to this trade that manufacturers should look in, particularly in Australia, New Zealand, Argentina and South Africa. These companies are well organized, energetically push sales and it is here that the efforts of manufacturers should be concentrated.

Organizing for Export

—J. F. Kelly, Jr.

The obligation of the equipment and accessory companies in overseas selling was stressed by J. F. Kelly, Jr., export manager of the Electric Storage Battery Co., whose paper was read by H. Denster of the M. & A. M. A. at the Foreign Trade meeting.

"The motor car manufacturers of this country are coming to depend more and more on our foreign business as their greatest field for development," he said. "They are

ready and willing to ship standard American made cars, equipped with standard American made accessories, all over the world. But if the accessory manufacturers are not careful and do not develop and encourage the sale and service of their products in countries where these American made cars are being shipped, they will find from time to time that there will be a demand for cars without accessories and that locally made accessories will be installed on the cars in place of the standard lines used here.

"This is true already in a number of cases, where cars are shipped without bodies, without horns, without batteries and without headlights, just because a high tariff has been levied against these articles, or because laws have been enacted in the country prohibiting the use of these accessories or the importation of them. Had the manufacturers taken an interest in these markets in time it is quite possible and more than probable that these tariffs and laws would not have been put into effect."

Combination Export Manager

—H. L. Kraus

The combination export manager, who handles from one office the sale of several non-competing lines, was the subject of the foreign trade address by H. L. Kraus of New York, who acts in this capacity for a number of companies, including Apco, Guide, Biflex, Simmons and others. He said:

"The combination export manager is not a new development. Methods and details of operation vary greatly. Degrees of efficiency vary greatly. Some finance the sales of their factories. Some use their own name and subordinate the name of the factory. Even though they call themselves 'Export Manager,' according to my view they are not; they really are sales agents or manufacturers' agents, working just the way manufacturers' agents work in the States.

"The majority of the combination export managers work with their factories just the way the export manager or the sales manager works who devotes his entire time to the factory. They use factory letterheads and factory cards. The factory's name is in the telephone book and on the office door. The factory secures carbon copies of all correspondence, approves all contracts, handles all financial matters and is in direct, actual touch with the entire export situation at all times."

Kraus declared that the reason for operating through such a sales representative is that the factory export department is too costly for many lines. Such a department would have a normal expense of from $12,000 to $16,00 or $20,000 per year. The difference between the export manager and the combination manager "is the amount of time devoted to a single factory," he said, adding:

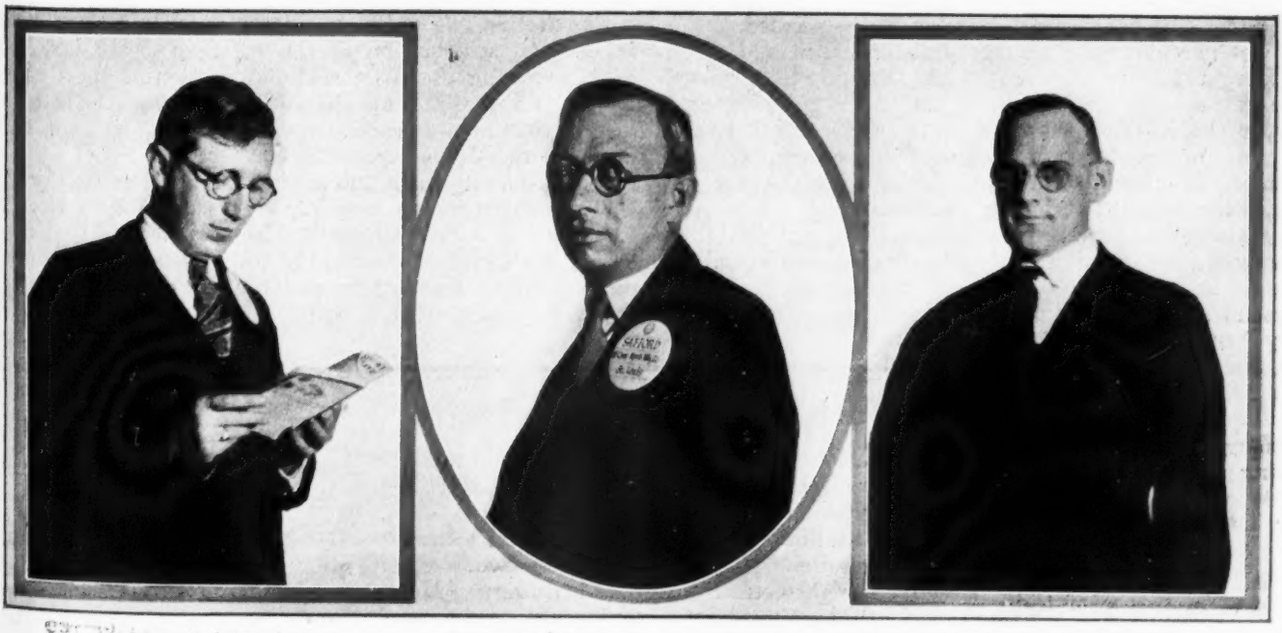
"And to my mind, there are compensating advantages which, almost, if not quite offset the fact that only 25 per cent or less of the combination manager's time is devoted to one factory. Usually the export man, if he is a good one, has an organization already established and he has salesmen selling the same kind of material. If he has been handling shock absorbers, replacement parts and bumpers, it is not going to be hard to get a line of spot lights started.

"A combination of lines in the same field appeals to buyers overseas. This is especially true of new lines. It is expensive to send out a trial order. If the customer can get a small shipment along with another large order, the shipping expenses are practically nothing. In the field of motor accessories overseas, opening orders are generally small, for the customer in many cases is simply gambling in taking up the particular accessory.

The basis on which most combination managers work, is under a drawing account against commission basis.

"There are good combination export men, there are bad ones and all the gradations between," Mr. Kraus said, "just as there are in manufacturing, in law and everywhere else."

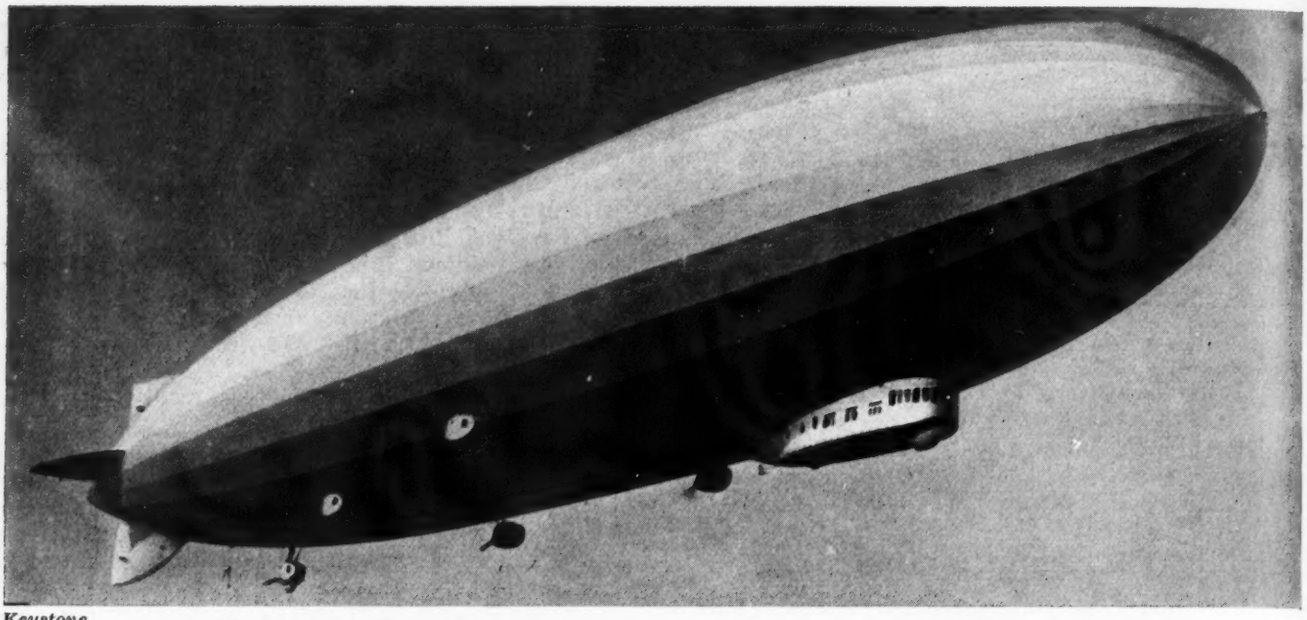
Tell How to Sell Goods at Home and Abroad



H. L. Kraus, export sales agent, explained how several companies may sell abroad through a single organization

L. A. Safford, vice-president, McQuay-Norris Mfg. Co., told how to get cooperation from jobber salesmen

J. H. Shoemaker, distribution manager, Perfection Heater & Mfg. Co., defined the function of the specialty jobber



Keystone

Announcement has been made that the men who built the last of the German Zeppelins, the ZR-3, will be employed in this country to build dirigibles for commercial uses

Possibilities of Trans-Ocean Air Travel Established by Flight of the ZR-3

World's longest continuous flight successfully completed. Dirigible proves its ability as an intercontinental passenger ship. Enough gas left to travel 1200 miles farther.

THE last of the Zeppelins has arrived in the United States. She came not as a weapon, but as part payment of the war reparations which Germany owes; and, if the terms of Versailles are to be carried out, the factory at Friedrichshafen will have to be dismantled.

A new world's non-stop record for distance and speed has been established. Time of the Mauretania's record crossing the Atlantic has been cut in half. It is possible, probable even, that the flight of the ZR-3 is the precursor of regular inter-continental passenger service. Dr. Hugo Eckener, president of the Zeppelin Co., has expressed the hope that this may eventuate.

Certainly the flight has established the practicability of traveling by dirigible, for, after the 81 hours and 17 minutes in which the ZR-3 negotiated more than five thousand miles, there was enough fuel and oil aboard to carry her a distance of a thousand or twelve hundred miles farther. It is significant that she left Germany on Columbus Day, making a trip in approximately three days which four hundred and thirty-two years ago took as many months.

The awed silence of the crowds on their way to work as the Zeppelin sailed over New York was not without dramatic magnificence. As the eary morning mists gave way to the sun the huge silvery craft emerged first as a vague shape almost a part of the mist, then clearly, still more clearly, until she was completely visible.

The feeling in Germany is reported to be that of pride in German achievement in the realm of peace. Feeling here, following the successful distribution of the German bonds both here and abroad is perhaps best expressed by a humorous line which appeared in one of the New York newspapers, "Hans across the sea."

The ZR-3, for which an order was placed by the German Government with the Zeppelin Works in 1922, is No. 126 in the series of rigid dirigibles constructed by that firm. The ship was turned over to the United States Government on account of reparations under an agreement with the Allies in which certain restrictions were laid down. It was not to exceed in size the largest of the ships built during the war, and it is not to be used for military purposes.

With a gas capacity of 2,500,000 cu. ft., the ship has a maximum length of 656 ft., a maximum diameter of 90.7 and a maximum in height of 101.5 ft.

The design of the ZR-3 is based on that of the *Nordstern* and *Bodensee*, two smaller airships, which were used in a commercial

Facts About the ZR-3 Flight

TOTAL distance covered, 5,066 miles.

Time in the air, 81 hours and 17 minutes.

Gasoline and oil consumed, 24½ tons.

Number of passengers, Thirty-two.

Freight transported, including fuel, 95,000 pounds.

Greatest speed, eighty miles an hour; average speed, fifty-five miles.

Greatest altitude, 12,000 feet.

service in Germany after the war until they were delivered to the Allies on account of reparations. The hull consists of three parts, viz., a girder frame of duralumin sections braced by steel wires, an outside envelop of cotton fabric and a series of gas bags. At the request of the American Government the nose was especially reinforced so as to make it possible to anchor the ship to a mooring mast. At the rear the framework carries the stabilizers, elevator and rudder.

In order to tighten and smooth the cotton covering it was given a number of coats of cellulose nitrate. Aluminum powder was added to this dope in order to give the covering a mat surface, which absorbs the least amount of heat from sun rays.

Girder Frame Reinforcement

The lower part of the girder frame is reinforced over its whole length from the nose cap to the fixed surfaces at the rear, by a girder structure within which there is a keel passageway. This internal keel was provided partly to help to distribute the stresses between the individual girder rings and partly to make the various parts of the ship readily accessible. All piping and wiring is carried through this passageway.

The main gondola or car located underneath the keel passageway, is rigidly secured to the framework of the hull.

This car has a metallic framework, the same as the ship itself. There are five streamlined "nacelles" back of the main car which carry the five engines. They are suspended from the hull partly by flexible cables and partly by rigid tubes. A radiator forms the forward wall of the nacelle, and admission of air to the nacelles through the radiator may be controlled by means of a shutter.

Access to the nacelles is by means of a ladder, the parts of which can be folded up and then form a spindle-shaped solid of low air resistance. The openings permitting the personnel to pass from the hull to the nacelles and vice versa can be closed by means of panels.

With the exception of the rearmost one, which always communicates with the one in front of it, all of the gas bags are provided with an automatic pressure relief valve and the largest bags have two such valves. These valves have a diameter of 20 in. Gas escaping from them is discharged into chimneys between the gas bags and expands in the space between the bags and the top part of the general envelop, which is ventilated by means of seven air ducts. The eight gas bags are also provided with control valves operated from the pilot's car by means of cables.

The engines are of the Maybach No. VII type. They deliver 400 hp. at 1400 r.p.m. and are started by compressed air. This is the first Maybach engine for dirigibles that was specially designed for commercial service, and the greatest attention therefore was paid to strength, dependability and durability. In order to increase the periods between overhauls it was necessary to increase the weight slightly. Both the main and the crankpin bearings are of the roller type.

The engines are of the 12-cylinder 60-deg. V-type, with a single camshaft between the two rows of cylinders. Each cylinder has three valves, a comparatively large inlet valve and two smaller exhaust valves. Four Maybach carbureters are placed between the cylinder blocks. On the outside of each row of cylinders there is a muffler.

The engines are somewhat out of the ordinary in that they can be reversed. This is accomplished by shifting the single camshaft, which is located between the two rows of cylinders, in an axial direction. A number of safety devices are provided to protect the engines from incorrect control operations. As a result:

1. The engine can be cranked only in the direction for which the camshaft is set.

2. Ignition always takes place according to a scheme corresponding to the direction of motion permitted by the position of the camshaft.

3. The reversing gear can be manipulated only when the throttle valve is in the closed position.

4. The throttle valve is locked in the "closed" position as long as the reversing lever is not in either extreme position.

A further safety device causes the engine to be shut down automatically as soon as the oil pressure at the bearings drops below a certain minimum value.

Ignition is by Robert Bosch HL-12 magnetos which operate equally well for both directions of engine rotation, readjustment of the timing taking place automatically whenever the engine is reversed. Each cylinder has two Robert Bosch spark plugs.

The dry sump system of lubrication is used, and the drive of the three oil pumps (one force and two drain pumps) is so arranged as to cause the pumps to rotate in the same direction whatever the direction of rotation of the engine. Oil passes through the drilled crankshaft and tubes to the piston pin bearings and the cylinder walls. Air for starting the engines is carried in steel bottles.

Fuel tanks are located opposite the respective engines. There are two kinds of fuel tanks, the engine supply tanks and the storage tanks, both being made of sheet aluminum. Each supply tank has a capacity of 116 gal.; each storage tank, 110 gal. The latter are distributed along the length of the passageway. Fuel is transferred from the storage tanks to the supply tanks by pumps. A total of 11,400 gal. can be carried. Each engine nacelle contains a 6½ gal. oil tank.

The ship is provided with two elevators and two rudders which are attached to the rear of the stabilizers, each having a surface area of between 175 and 200 sq. ft.

Figuring on a barometric pressure of 29.92 in. of mercury, a temperature of 32 deg. F., atmospheric humidity of 60 per cent, a hydrogen inflation volume of 2,470,000 cu. ft. and a density of the hydrogen relative to the atmosphere of 0.1, the total buoyancy, after subtracting the weight of the hydrogen, is 179,000 lbs. or 89.5 tons. The weight of the dirigible without fuel, ballast, passengers, etc., is 45.5 tons, leaving a net buoyancy of 44 tons.

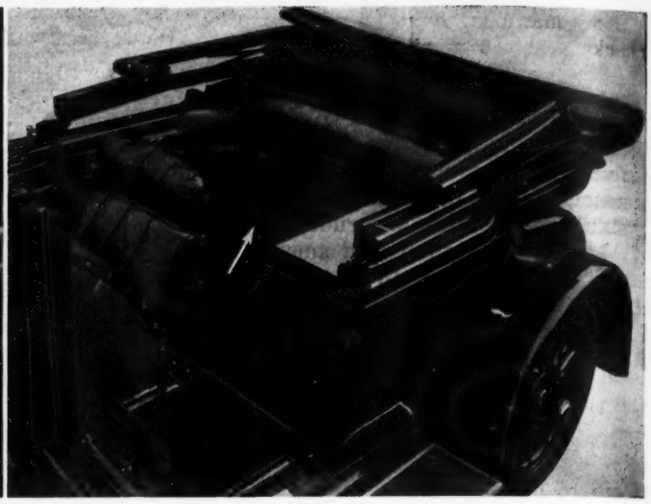
With all the engines operating at full load the ship has the following speeds: With five engines, 76 m.p.h.; with four, 70 m.p.h.; with three, 62 m.p.h. Normal operating speeds are somewhat lower.

With a full supply of fuel (23 tons of benzol) and 2.64 tons of lubricating oil the dirigible has a cruising radius in calm weather of 3480 miles when operating under full load with all five engines; and 5200 miles when operating at the normal load with all five engines.

Instruments Carried

The ZR-3 is equipped with instruments of all kinds for navigation and communication, some of which had their first extensive tryout on the transatlantic trip. They include an Anschutz gyroscopic compass, the motor of which is enclosed in an hermetically sealed aluminum housing containing an atmosphere of helium; an Anschutz artificial horizon for navigation at high altitudes; a Goertz speed indicator of a new type; a Goertz drift indicator and an apparatus for the optical determination of the barometric altitudes in the course of the trip. A complete radio transmitting and receiving station is installed, with a generator driven by a servo motor.

Ballast in the form of water (anti-freeze solution) is carried in bags of rubberized fabric.



Left—Interior of the inclosed Austin 20 with extra seat erected. Price £795. Right—Rear part of spacious sportsman's car. Arrow indicates one stowaway seat

Price Reduction Announced as British Show Opens

Balloon tires and four-wheel brakes gain in popularity. Changes in design relatively few. Attendance on opening day is 16,000. Number of small sedan models grows.

By M. W. Bourdon

LONDON, Oct. 17.

APART from the fitting of more front wheel brakes, mechanical development is less marked in the case of cars shown at the Eighteenth Annual Olympia Show, which opened here today, than it has been at any show since the war. The chief features of the exhibition are the large increase in front wheel brakes on all sizes of cars and the use of balloon tires on a large proportion of all cars with engines of less than 120 cu. in. displacement.

Substantial price reductions are announced in many cases, while the equipment carried by some makes is increased. There is marked increase also in the number of small sedans.

Forty-four per cent of all British cars under 125 cu. in. displacement have front wheel brakes as standard or optional equipment, while 80 per cent of all cars of more than 125 cu. in. displacement have such brakes either standard or optional. Perrot designs comprised 39 per cent; Rubury, 24 per cent and Lockheed, 4 per cent. The remaining 33 per cent are of special design. Lockheed is the only hydraulic system represented while there is only one mechanical Servo brake. This is used on the Rolls-Royce forty.

Balloon tires, which were not seen at all in the 1923 exhibit, now are standard or optional on 41 per cent of all British models, and on 51 per cent of those under 120 cu. in. displacement. No car of over 180 cu. in. displacement has balloon tires as standard equipment and only four in this class use them as optional equipment. No makers have revised the ratio in the steering gear on account of the use of balloon tires.

Many additional makers are showing small sedans, the smallest being the Humber eight. This car has a 60 cu. in. engine and the sedan sells for £290. Singer is showing a 10 hp. model with 80 cu. in. engine for £280. These are typical of others, some of which use Weymann and others conventional bodies.

Only Woolsey has its own design of fabric sedan. Daimler is offering Weymann type closed bodies on chassis up to 30 hp. at a price of only £10 above that of open cars. The outlines of all British Weymann bodies closely approximate those of conventional bodies, avoiding the severely rectangular type employed by French makers. Austin has adopted metal frame bodies for all of its models.

Open Cars Have Wider Doors

A majority of open cars have much wider doors, the width varying from 24 to 30 in. Panels heretofore used at the back of front seats have been eliminated in many designs, due partly to the great increase in adjustable front seats, some of which can be turned at an angle and also be moved backward and forward to increase or decrease leg reach.

Side screen equipment has been improved further but pneumatic upholstery has not increased to the extent expected. It is used on only three makes of cars but other makers are prolonging tests with it. Many makers are providing folding rear wind screens.

Some manufacturers supply shock absorbers or spring checks and a majority fit gaiters over the springs.

A total of 23 new British chassis are shown. These include 16 fours, five sixes, and two straight eights. Fourteen of them are under 120 cu. in. displacement, 10 have overhead valves, two overhead camshafts, 21 magnetos, 13 plate clutches, four multiple disk clutches, 12 front brakes as standard and four front brakes optional.

No Tendency to Produce Fewer Chassis

There is no general tendency for British makers to concentrate on the production of fewer chassis models. Woolsey and Sunbeam both have dropped two models, but Dailmer has added the largest six yet made. This has a 515 cu. in. engine and 162 in. wheelbase. Four-cylinder models still predominate by a wide margin and comprise 73 per cent of the whole. Three makers including Morris have discontinued sixes introduced at the last show.

Morris is concentrating on two fours and expects its output on 109 cu. in. model to be 70 per cent sedans selling at £375. British cars generally are unlikely to produce more than 20 per cent of closed bodies, including so-called salon-landaulets, which threaten the sedan in popularity, especially in the larger size cars.

Prices of imported cars average only 12 per cent reduction since the last show despite removal of a 33 per cent import duty. Reduction in price of British cars averages 6 per cent, ignoring additional equipment and front brakes where these are standard. Morris and Austin prices have been reduced 13 and 11 per cent respectively. Citroen's reduction averages 10 per cent, Fiat's 18 per cent, Renault's 13 per cent and American cars 14 per cent.

General opinion appears to be to the effect that British cars maintain the same relative values despite the smaller percentage reductions in price. A majority of British makers are optimistic regarding the 1925 demand, but there is some uneasiness concerning the possibility of making a profit at the new price level. Several are planning larger production schedules. Sales have continued to be exceptionally good in spite of bad weather.

Opinions to the effect that reduction in the price of British cars is needlessly large are expressed freely, especially in respect to Morris who besides making the reduction mentioned has added rear wind screen, front brakes, balloon tires, better bodies and more equipment, as well as giving a year's free insurance. The Austin 20 with 210 cu. in. four-cylinder engine has been reduced in price from £625 to £525 in spite of the addition of front wheel brakes. Its new six-passenger sedan is priced at £675.

Business Prospects Encouraging

Sixteen thousand visitors paid entrance fees on the first day of the show as against 15,000 last year. Many makers consider their export prospects more promising than at any time since the war. Relatively high grade four-passenger fours with 70 to 120 cu. in. engines are considered much more attractive to a majority of British buyers than larger fours and sixes, even though the latter sell at lower prices.

It is the general concensus of opinion that 1925 will show most British makers able to withstand foreign competition without protective tariff because home products meet more completely the requirements of British purchasers. In any case no American exhibit is thronged continually as are those of Morris, Standard, Austin, Humber, Singer, Citroen, and Clyno. The latter, a British newcomer in 1922, has increased rapidly its production of an 85 cu. in. four selling at £195. Its four-passenger car output doubled this year and it is planning to double it again by next February, producing 200 weekly.

Morris states that its dealers have contracted for cars beyond the planned output of 40,000. Citroen is the only imported car the British sale of which is expected to increase, with the possible exception of the small Fiats and Renaults.

One hundred thirty-five makes of cars are exhibited at the show, these including 62 British, 32 French, 22 American, 12 Italian, five Belgian, one Swiss and one Canadian Brooks steamer. German and Austrian makers still are barred from the show. There are a total of 472 stands of which 295 show accessories, 56 coach builders' products and 121 cars. There are a total of 578 complete cars and 66 stripped chassis.

American cars represented include Buick, Cadillac, Chevrolet, Chrysler, Dodge, Durant, Essex, Flint, Hudson, Hupmobile, Jewett, Marmon, Maxwell, Moon, Oldsmobile, Overland, Packard, Paige, Reo, Rollin, Studebaker, and Willys-Overland.

There is some feeling that American makers will have to work hard to increase the sale of their cars in England, because the principal British demand seems to be for a low, open, four-passenger model with an efficient engine of under 120 cu. in. displacement. This means in effect a four-cylinder engine of less than 3 in. bore and necessitates a well finished body with high sides, deep shaped upholstery, detachable wheels and expanding brakes, front optional or standard, at a price of £175 to £350.

Daimler Builds Largest Car

The Daimler Co. is continuing its policy of covering the widest possible field and has added yet another to its previous range of seven chassis types. The new model is claimed to be the largest private car in the world; its design is based upon that of the four 57 hp. six-cylinder chassis built for King George early this year. Nevertheless, it is termed 45 hp., like the previously largest type (which had a 110 x 130 mm. engine), though its engine dimensions are 117.5 x 130 mm., giving it a piston displacement of 515 cu. in. It is being made in two lengths of wheelbase, viz., 154 in. and 162 in., both with a track of 60 in. The chassis prices are £1325 and £1400, figures which compare with £1850 in the case of the 40-50 hp. Rolls-Royce (452 cu. in.), £1800 for the 40 hp. Lanchester (376 cu. in.) and £1500 for the 40-50 hp. Napier (376 cu. in.).

Certain design features apply to all or many Daimler models and all models now have four-wheel brakes. The system adopted is distinctive, though resembling the Rubery in that the front brake camshaft has a bearing on the front axle and is therefore independent of spring flexion; the shaft is, however, above the axle with a long upstanding bracket for the bearing. Then, too, the wire wheels, both back and front, have deeply dished hubs, enabling the brake shoes and drum to be arranged in the same vertical plane as the wheel bearings, as well as that of the swivel pin and the brake-expanding cam. The hand lever actuates a transmission brake. Low pressure tires are standard equipment on the smallest model only, but recognizing that this type is likely to make headway in the larger sizes, Daimlers have widened the track of the medium chassis class (35 hp., 25 hp. and 20 hp. cars) and are prepared to fit balloon tires to order.

Made in the same plant as Daimler cars and being in reality a smaller and lower priced continuation of the Daimler range, B. S. A. cars are made in three types, two with sleeve-valve engine (six and four cylinders respectively) and one with a 90 deg. two-cylinder air-cooled engine having poppet valves. All have three-speed gearsets, unit powerplant, central controls, battery ignition, bevel and quadrant steering gear, rear wheel braking, Lanchester worm drive and disk wheels; the Six has a seven-bearing crankshaft, while the Four has a five-bearing. In this range, also, open and sedan bodies are offered, the latter including a Weymann type at £10 more than the open car price of the Six; as examples of the latter, the 16 hp. Six (114 cu. in.) ranges from £465 to £490, according to length of wheelbase—three variations are available—the 14 hp. Four (107 cu. in.) is £385, and the 10 hp. Twin (65 cu. in.) £240 with a two-passenger body.

The 20 hp. and 40-50 hp. Rolls-Royce chassis are being continued with no alteration worthy of mention—unless it be the fitting of vacuum feed instead of the pressure system on the larger model. Front brakes are not available on the 20 hp., the chassis price of which remains at £1100 and that of the 40-50 hp. at £1850, the latter including front brakes.

Rolls Forty Has Six Sets of Brake Shoes

In regard to the braking equipment of the "Forty," the system now adopted is unorthodox, especially in connection with the method of actuation. There are six sets of shoes, two of the four on the rear axle being operated by hand. The four-wheel outfit is pedal-applied with a purely mechanical relay. The latter may be described as a semi-servo device because foot-pressure is used directly to the back wheels, but on the way there it causes the mechanical servo to operate and apply the brakes to all four wheels. This scheme is claimed to give the maximum direct braking and by the use of a floating lever to properly divide the braking force between the front and back wheels. Thus, in this system, the back wheel braking is as hitherto when the car is in motion, but, in addition, the servo simultaneously supplies pressure to the front wheel brakes and further pressure to the rear ones. The total braking effort for a given foot pressure is said to be about three times greater than in either two-wheel brake systems or four-wheel systems unassisted by servo. Moreover, the whole braking effort, both direct and servo, is available when the car is moving backwards, because the servo is driven positively in both directions and has a second connection which enables it to act when the car is reversing. Each pair of brakes has a bevel gear equalizer, while to reduce friction and the risk of steering stiffness occurring when the front brakes are forcibly used a special type of spherical joint has been evolved. Finally, the cam design affords a constant leverage over its whole range of action and wear.

Napier Remains Unchanged

The 40-50 hp. Napier with its six-cylinder "aluminum" engine (376 cu. in.) remains unchanged in design and price, two lengths of wheelbase again being offered with chassis prices of £1500 and £1600 respectively. It is surprising to find this "super-grade" car still unequipped with front brakes.

Although no new models are introduced, the Vauxhall cars for next year are of interest in connection with variations that have been made in the chassis. Three models are available, viz., the 14-40 hp. (140 cu. in.), 23-60 hp. (242 cu. in.) and the 30-98 hp. (259 cu. in.), all with four-cylinder engines. In the case of the smallest engine (75 x 130 mm.) duralumin connecting rods are now fitted, and these are balanced by means of bob-weights attached to the big-end bearing caps, thereby bringing the center of gravity very near to that of the crankpin, and, in conjunction with a stiffer three-bearing crankshaft, improving the general balance. (It is hard to see how such weights can have this effect—Editor.) The Lanchester Harmonic Balancer, which has been fitted to the 23-60 hp. Vauxhall for some two or three years past, has not been adopted, however, for the 14-40 hp. The latter now has a four-speed gearset.

The new management of Wolseleys has called "Halt" to the policy of increasing the number of chassis models. The smallest and the largest of the line, with 59 and 326 cu. in. engines respectively have been cut out. Four distinct chassis are now to be made, though two of these use the same parts to a large extent. These two, originally known as 14 hp. and 20 hp., are now termed 16-35 hp. and 24-55 hp. and have L-head engines with four and six cylinders; block cast cylinders and detachable heads displace the pairs with fixed heads of last year. The other two models are Fours, both with overhead camshafts, and although these are now called 11-22 hp. and 15-40 hp., are identical—except in a few details of design—with the 10-hp. and 15-hp. chassis current for several years past. All engines except the smallest are of 80 x 130 mm. bore and stroke, the 11-22 hp. being 65 x 95 mm. (77 cu. in.). Prices show but slight change. Perrot type front brakes are standard on the Six, optional on the larger Fours; balloon types are optional on all Fours, Wolseleys are among the very few British makers who fit other than Dunlop tires, using Michelins. Magneto ignition is now fitted to all models (three out of six had battery-and-coil last year) and camshaft chains now have means of adjustment. Fabric panelled sedans have been added to the body line and in the open cars as well as in the standard sedans the front seats are now adjustable.

No Fundamental Changes in Austin

No fundamental changes have been made in the Austin range, which still comprises the 7 hp., 12 hp. and 20 hp. Fours (45, 101 and 210 cu. in. respectively). But the frame of the largest model has been reduced in height by 3 or 4 in. and front-wheel brakes are now standard equipment on all models; hitherto only the Austin "baby" has had four-wheel braking, viz., the "Seven" with its wheelbase of 75 in., track of 46 in. and overall dimensions corresponding with those of a full-sized sidecar outfit. This model, by the way, is being constantly increased in output, the latter now being in the region of 160-170 per week. Sir Herbert Austin has now adopted a new system of body construction for the Twelve and Twenty. The framing is built up on a sheet metal base consisting of two flanged strips on edge, inverted flanged channels (transverse and longitudinal) connecting them, with a deeper channel forming the central cross member. Riveted to this base are other steel members. Filling-in strips of wood are attached to the steel members where required to secure the trimming, aluminum panels, etc., but in the main the framework is of steel, which is depended upon to resist stresses in all directions. These bodies are claimed to be lighter and yet more rigid, and to eliminate the creaks so prone to develop, especially in closed bodies, when a wooden framing stiffened by angle irons is used. They are also said to be cheaper and a better manufacturing proposition.

The Rover Co. has its new 14-45 hp. chassis on view. This striking design, which is one of the centers of at-

traction at Olympia, will be the subject of a complete technical description in an early issue of AUTOMOTIVE INDUSTRIES. The price has been set at £550 for the five-passenger open car.

Two other models are offered by the Rover Co., one is the air-cooled two-cylinder "Eight" which contributed very largely to this firm's success until a year or so back. The other is the new four-cylinder 9 hp.

Morris is continuing his two-model policy so far as chassis types are concerned, though, as hitherto, these have identical gearsets and rear axles, varying mainly in regard to cylinder bore and, in the 1925 models, as to wheelbase. The larger engined chassis now has a wheelbase of 108 instead of 102 in.

Another British maker with a reduced number of models is Sunbeam, for the five of last year have been cut down to three, both of those omitted being sixes. The three models for 1925 consist of two Fours (97 and 129 cu. in.) and one Six (193 cu. in.), the latter and the larger Four now having the same bore and stroke, 75 x 120 mm. On the two larger models front brakes are standard. A screw-and-nut type of steering displaces the worm and segment of the larger cars, wire wheels are used instead of hollow-steel spoked, the larger Four has had its frame lowered and in the Six an automatic control of the ignition timing supplements the hand control.

The 21 hp. and 40 hp. six-cylinder Lanchesters are continued without important change, apart from the provision of four-wheel braking on both models, whereas hitherto only the smaller car (introduced twelve months ago) has been so equipped. The "Forty" now has a built-up tubular type of front axle and has had its front springs, etc., stiffened up to withstand front braking stresses. The means of adjustment now consists of an eccentric mounting for the pivot points of the shoes. An eccentric block, with a lever attached to it, is mounted within an upper extension of the swivel axle, and from it depend the shoes, supported on separate pins. Thus rotation of the eccentric block (after it has been freed by the slackening of locking-bolts) causes the effective circumference of the shoes to be extended or reduced.

Humber Continues Three Models

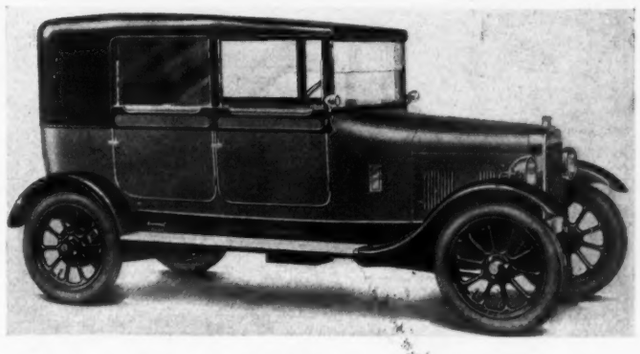
Three continued models form the program of the Humber Co., though minor variations have been made in the chassis of each one, i.e., 8-18 hp. (60 cu. in.), 12-25 hp. (109 cu. in.) and 15-40 hp. (171 cu. in) all with four cylinders and overhead inlet valves. The Twelve has had its bore increased slightly, resulting in the maximum b.hp. rising from 32 to 36.

Front brakes are available at an extra £30 on the 15-40 hp. Humber, but not on the smaller models.

Front brakes on the Fifteen are of the Perrot type and are actuated by the pedal in conjunction with the transmission brake. Paddle-boxing has been applied to the four-passenger bodies to increase the seat width on a wheel track of 57 in. Rear screens are standard and prices have been reduced to £630 for the five-passenger car of the largest model. A three-seated sedan is offered on the Eight and sells at £290. This maker has a license to build Weymann bodies, but is not offering one yet.

One of the oldest firms in the British industry, the Arrol-Johnston Co., Dumfries, Scotland, has introduced an entirely new small model which has a four-cylinder engine of 69.5 x 110 mm. (112 cu. in.). It represents exceptionally good value on British standards, the price of the four-passenger open car with folding top and rigid side screens, three doors, adjustable front seats and leather upholstery being £360. The specifications include hollow-crankshaft lubrication, pump water circulation, magneto ignition, cone clutch, four-speed gearset with right-hand control, spiral bevel drive, four-wheel brakes, balloon tires (29 x 4.95 in. Dunlops), half-elliptic front springs and quarter-elliptics at the rear, all with gaiters. The equipment includes the usual electric outfit, clock and speedometer, electric and bulb horns, screen wiper, driving mirror, gasoline tin and carrier, fuel gage, step mats, folding rear screen and spare wheel and tire. The chassis has a wheelbase of 114 in., a track of 51½ in., and a 10-in. ground clearance. Two other models are now made, both Fours, 16 and 20 hp., the 16 hp. five-passenger selling at £425 (no front brakes) and the 20 hp. at £510, with front brakes £25 extra.

Another of the oldest of British makers, the Belsize Co., has introduced a new model, a straight-eight, so



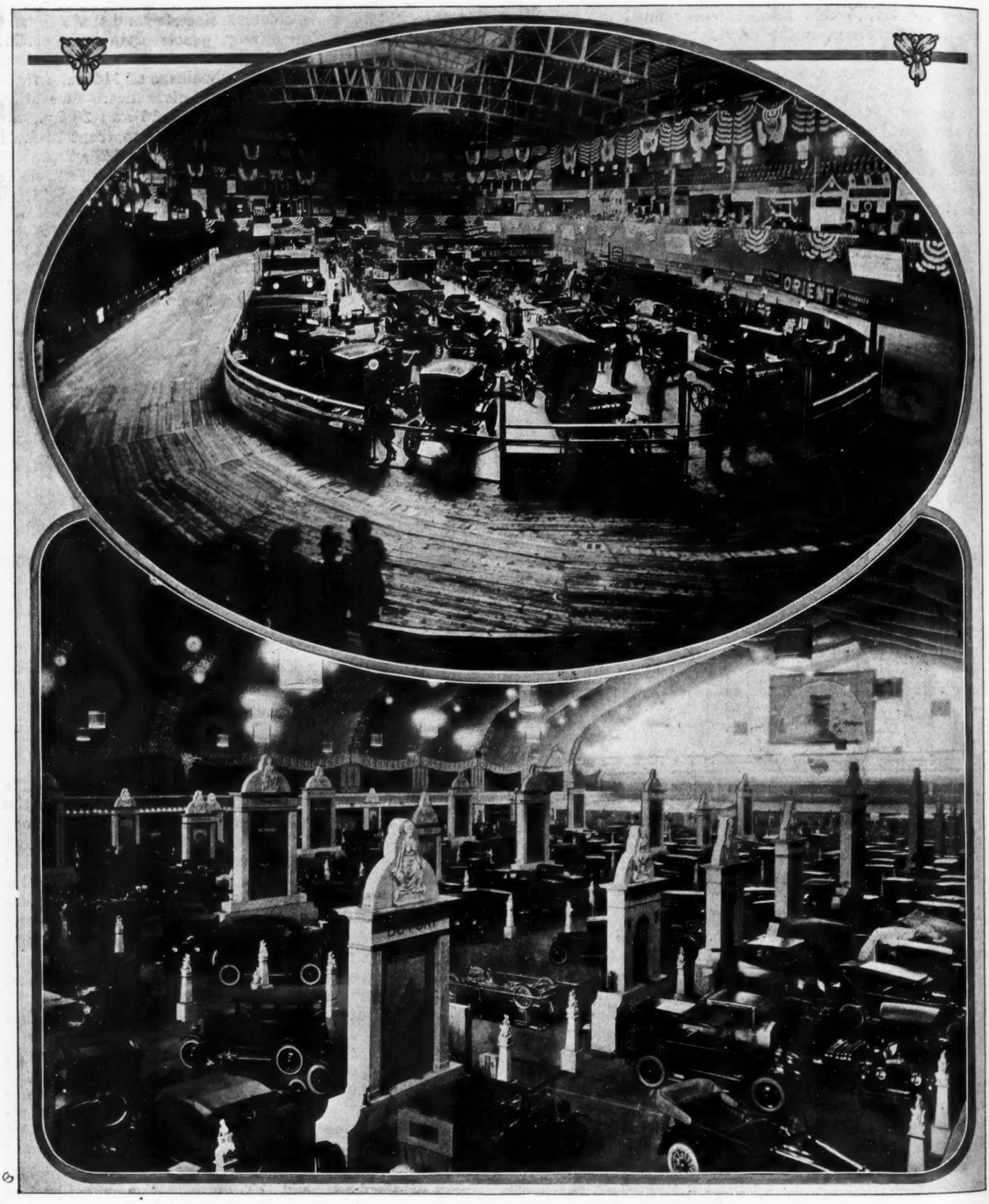
12-24 hp. Lagonda with folding top sedan. The upholstery is pneumatic

making its chassis range include four, six and eight-cylinder models. The Eight has the same engine dimensions as the other two, viz., 63 x 100 mm., giving it a cubic capacity of 152 cu. in. Its cylinders are cast in fours, with overhead valves and pushrod operation. The design throughout parallels that of the Six and Four, except that the latter has a three-speed gearset and no front brakes. The Eight is at present offered only with a sedan body at £1050 or at £675 for the chassis, the Six and Four cars with four-five-passenger bodies being £290 and £475 respectively.

Another new straight eight is announced by a comparatively newcomer to the industry who introduced a smaller model of the same type last year. This is the Beverley-Barnes. The new model has a bore and stroke of 80 x 120 mm. (292 cu. in.) as compared with 75 x 112 mm. (243 cu. in.) in the case of the older model, which is being continued. Both engines have an overhead camshaft, nine-bearing crankshaft, integral inlet and exhaust manifolds, Zenith carbureter with one float-chamber and two jets and choke tubes, each of the latter supplying mixture to four cylinders with a hot-spot for each group. Lubrication is forced to crankshaft bearings and overhead valve gear. The unit powerplant construction is followed, but behind the engine the design is orthodox.

Once again the magnetic transmission system finds a representative at Olympia and in the list of British cars for the forthcoming year. This is known simply as the Magnetic, and is on the Entz system; previously it has had a four-cylinder engine of 80 x 130 mm. (161 cu. in.) but a new model, displacing the old, has six cylinders of 73 x 115 mm., giving it a slightly higher piston displacement, viz., 175 cu. in. Four-wheel brakes and balloon tires are standard. The price of this chassis (126 in. wheelbase) is £800, the sedan being quoted at £1200.

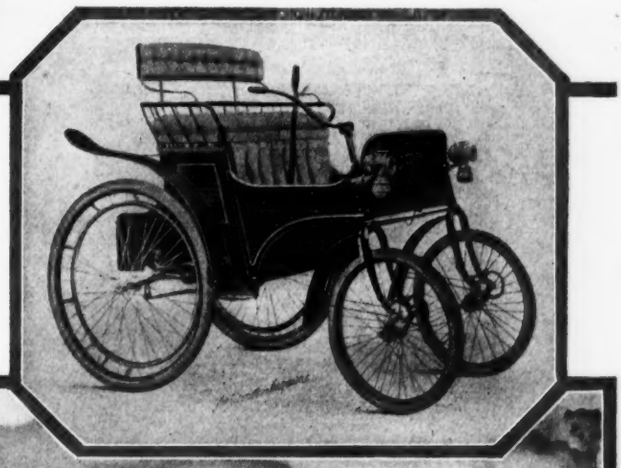
Automobiles of Yesterday and Today

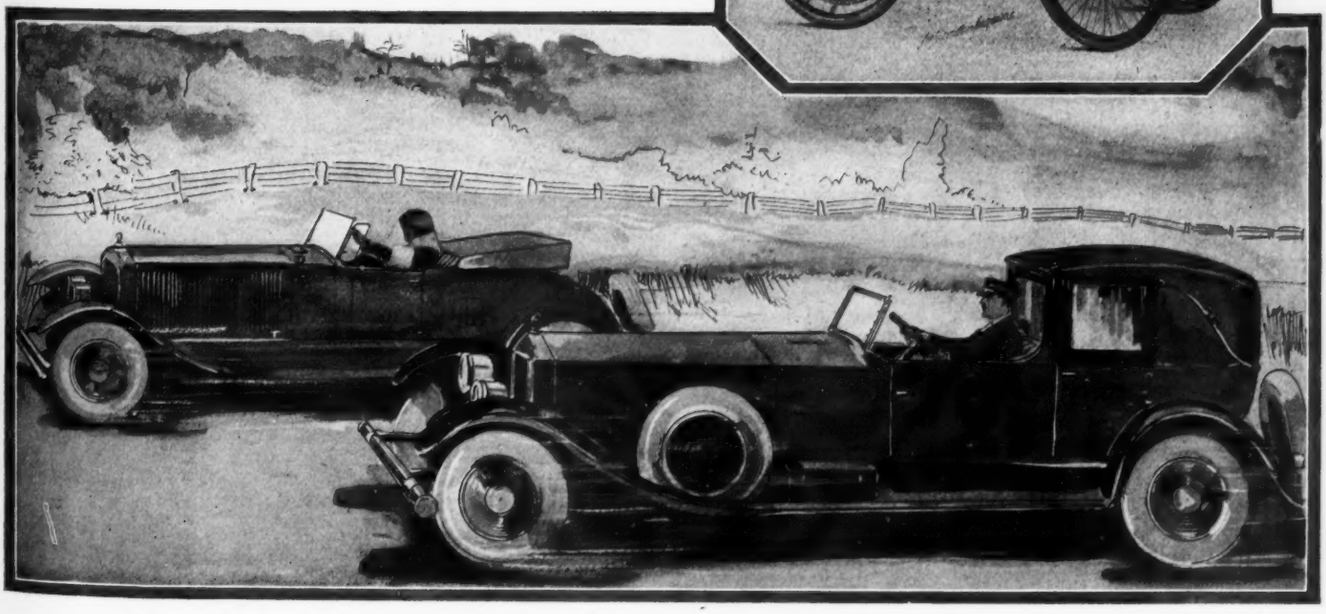


When gasoline wagons and horseless carriages were displayed in Madison Square Garden at the first show only one "motor emporium" in the United States had been open more than six months. Above is a picture of the earliest exhibition and below is one of the New York National Automobile Show twenty-five years later

In the days of the earliest Fifth Avenue Motor Coaches a dashboard was considered all but superfluous and the man who drove an electric vehicle was known as a motorman

Parks and boulevards that were open to horseless carriages were few indeed, and gasoline was still exploded by means of an igniter





The speed limit of eight miles an hour was "becoming irksome" in England a quarter of a century ago and an increase to ten or twelve was being urged, while in France a speed record had been established of forty miles an hour, and what was probably the first crusade against "hurricane speeds" had been started

"Luberator" Feeds a Special Oil to Valve Stems, Upper Cylinder Walls and Piston Rings

High-viscosity, penetrating oil supplied through intake manifold. Luberator Co. claims that many engines lack proper facilities for lubricating valve stems, especially those of exhaust valves.

By W. L. Carver

A HIGH-VISCOSITY penetrating oil is supplied through the intake manifold to the valve stems, upper cylinder walls and piston rings by an all-loss system which incorporates the Luberator, made and sold by the Luberator Co. of Columbus, Ohio. This company is a subsidiary of the Ironsides Co., which has specialized in the lubrication of rolling mills for many years. The Luberator resembles the conventional vacuum tank and is connected to the intake manifold in a similar manner. A feature of the construction is a compensating device which regulates the flow of oil in the inverse ratio to the intake manifold depression, so that the maximum oil flow occurs at loads approaching the maximum at any throttle position.

It is asserted by this company that the ordinary crankcase lubricants are not completely satisfactory for the lubrication of the valve stems, piston rings and the upper portions of the cylinder walls. Many engines lack the

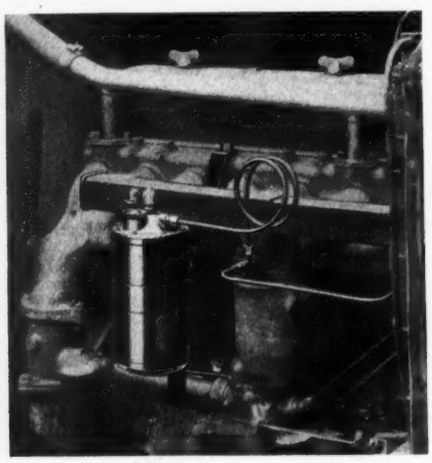


Fig. 1—Luberator connected to the vacuum tank fitting of a standrad design

proper facilities for the lubrication of the valve stem, particularly those of the exhaust valves.

To eliminate these objections, the Luberator as illustrated by Fig. 1 and a special oil have been developed. This oil is refined from Pennsylvania crude and blended, having an average gravity of 32 deg. Baume, a high viscosity and rather high flash and fire tests. Freedom from the tendency to gum is an important characteristic, as is the penetrating quality, which insures entrance into the valve stem guides and the piston ring grooves. The oil is introduced into the combustion chamber in a finely atomized state, and it is claimed that an oil film which withstands the heat of combustion is formed on the interior walls and that a small portion passes out with the exhaust and lubricates the stems of the exhaust valves.

Three sizes of container have been standardized, of 1 qt., 2 qt. and 2½ qt. capacity, respectively. These containers have the general appearance of the vacuum tank and are located in any convenient position under the hood. The body of the container is made of tern plate and the upper head incorporates the compensating device, filler and outlet for connection to the intake manifold. As illustrated by Fig. 2, the outlet at *F* is connected to the intake manifold by small copper tubing. In every case the connection to the intake manifold is located between the throttle valve and the posts and should be at a central point, such as the junction of the vertical leg and the branches, to insure equal distribution to all valve pockets.

Suction in the intake manifold, and consequently at the Luberator outlet, lifts the oil from the container section of the tank through the cylindrical screen and tube shown. The upper end of the tube terminates in a bend which is inclosed by a sight feed dome of glass. The basin of this sight feed drains into a lateral drilled hole which in turn has its outlet at an opening in the sleeve of the compensating valve. The compensating valve consists of a spring-opposed piston within a cylinder which is closed at its lower end by a screw cap equipped with a relief tube to prevent the accumulation of pressure below the piston. While the cylinder is of bronze, the piston is made of steel, hardened and ground, and carries a tapered metering pin which extends upward into the flow-adjusting sleeve. A light coil spring holds the metering pin in position against a sleeve which is screwed into the upper face of the piston,

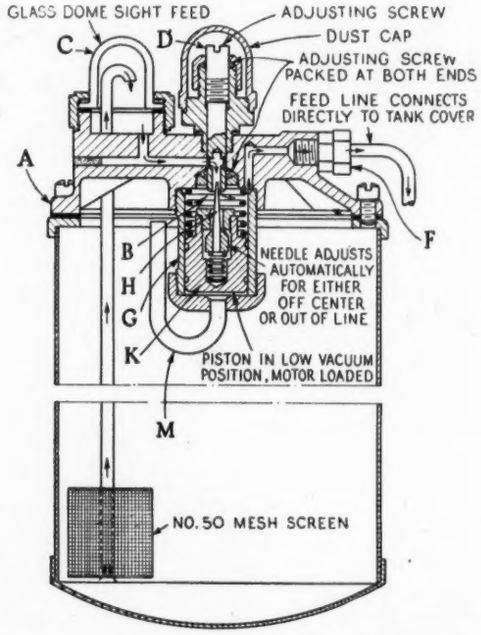


Fig. 2—Cross section of the Luberator showing the compensating valve which cuts down the supply of oil at low throttles

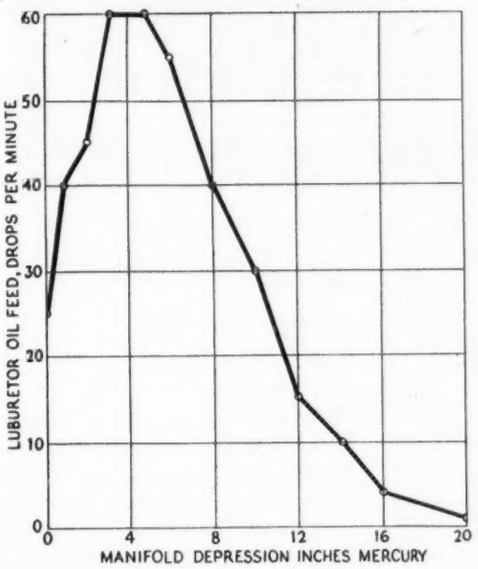


Fig. 3—Delivery curve which indicates how delivery becomes a maximum as the full load condition is approached

the purpose of this arrangement being to prevent the jamming of the long taper of the metering pin in the orifice of the adjusting sleeve. This spring is much lighter than the larger spring which opposes the piston, therefore it is not possible in any degree of adjustment to cause the taper to seize at the corners of the seat on the adjusting sleeve.

As the final outlet of the device is connected to the upper portion of the cylinder, the vacuum of the intake manifold tends to draw the piston upward, which motion is opposed by a coil spring. This motion, in conjunction with the calibration of the spring and the taper on the metering pin, produces a compensating effect which limits the flow of oil at low throttles when the vacuum in the intake manifold may reach 20 in. of mercury or higher. Adjustment of the rate of flow is made at a screw slot at the top of the compensating sleeve. A lock nut and packing gland are installed and protected by a threaded dust cap. While the rate of flow varies somewhat with the size of engine and intake manifold, the standard setting at the plant produces a rate which comes within 10 per cent of the values indicated by the curve in Fig. 3. When the vacuum in the intake manifold drops below 3 in. of mercury, the reduction in oil flow varies inversely with the velocity in the manifold. A relatively high velocity tends to sustain the flow of oil, while low velocities cause a corresponding reduction. This feature tends to adjust the flow of oil to full loads at varying engine speeds. As shown by this chart, the flow of oil varies from approximately 60 drops per min. at low vacuum to 1 to 2 drops per min. under idling conditions. The rate of oil consumption varies somewhat with the size of engine and intake manifold and the gear reduction. Experience has demonstrated that the oil consumption ranges from 1 qt. to about 400 miles for larger passenger cars to 1 qt. for about 600 miles for the smaller jobs.

Although not shown in Fig. 2, a rather small hole is drilled through the wall surrounding the vertical drilled hole connecting the piston chamber with the horizontal outlet. This opening allows the mixture of a slight amount of air with the oil feed and assists in atomization. When the engine is standing idle, this hole acts as a bypass and prevents the whole contents of the tank from syphoning over into the intake manifold. The entire cover member is cast from brass, as is the filler cap, which is vented and screwed into a gasketed joint. The copper tube connection at the intake manifold can be made at a tee with the usual vacuum tank connection, or may be made separately.

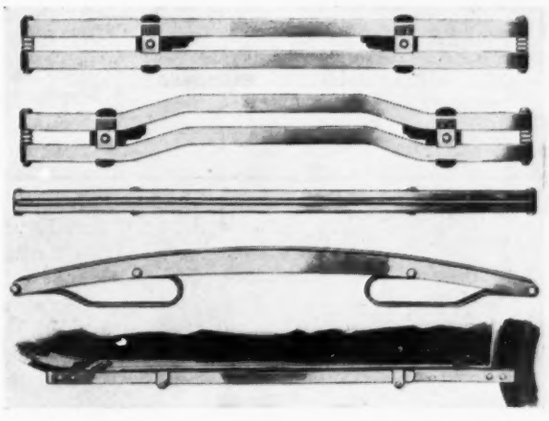
Owing to the admixture of a slight amount of air with the oil in the Luberator, the nozzle action of the connection at the intake manifold and the turbulence of the intake stream, the oil is reduced to a finely atomized state and tends to adhere to the intake valve stem. A similar film deposits on the walls of the combustion space and cylinders and some of the fog which is unburned (just as is some of the fuel) passes out with the exhaust and clings to the exhaust valve stems. As the oil is light and penetrating it seeps into the valve stem guide bushings and ring grooves.

Although it may be claimed that much the same results could be obtained by mixing a small amount of lubricating oil with the fuel or by passing the intake air through the crankcase, the engineers of this company state that neither of these methods is wholly satisfactory. In the first instance, not more than 2½ per cent of oil can be added to the fuel without interfering with carburetion. This means that the lubricant is diluted to 40 times its original volume, with consequent effect on its lubricating properties. The oil feed is not accurate, due to the varying rates at which the gasoline tank is filled, and in cold weather the paraffine oil in the fuel may congeal and clog the carbureter passages. While the second method approaches more nearly to the results of the Luberator system, it lacks the advantage of a lubricant specially adapted to conditions at and above the upper piston rings. Also, the mechanical details and complexity of passages are not readily adaptable to existing practice.

Side Guard Added to Bumper Line

SOMETHING of an innovation in the bumper line has been placed on the market recently by the United States Chain & Forging Co. in the form of a side guard intended for fitting to the running boards of passenger cars to protect them and the car itself by cushioning side impacts. As shown in the accompanying cut, the McKay side guard consists of two strips of spring stock fastened together by clips and attached to the running board by two brackets. The strips are looped at one end and the inner of the two is bowed backward at a point near its center.

Beside the side guard and the standard single, double and triple bar types, the McKay line of bumpers now includes the "Perfection" and "Imperial" models shown in the cut. The Perfection model has two curved bars offset between the supporting brackets, while the Imperial model is of the channel type and incorporates two springs.



McKay bumpers. From top to bottom the types illustrated are termed "Standard Twin Bar," "Perfection," "Imperial" and "Side Guard"

Just Among Ourselves

Three Cars on Every Farm Predicted

MOST farmers have a need for more than one motor vehicle. Our correspondent in Kansas reports that there is a real shortage of used cars selling between $200 and $300 in that section at the present time because of the large number of farmers desiring to buy such vehicles for their children aged 14 or over, that the children may be able to drive to school either to a nearby town or to the country schoolhouse. "Every farmer," the report continues, "if he has children, ultimately will have three cars: one family car, a good one; one old car for daily business use; and one for the children. Many of them will have motor trucks as well." This report from the sales firing line indicates that there's a mighty good time coming in the farm market, even if it hasn't arrived at this moment.

More Returns and Less Speed Urged on Oil Men

OTHER industries besides our own are finding that quantity production isn't always a sure road to profits. George Otis Smith, director of the U. S. Geological Survey, told an International Petroleum Congress recently that "First in the program needed to make the oil business safe for investors, operators and consumers I would put less speed and more return. We can learn from others while others learn from us."

Pros and Cons of the Gasoline Tax

THE U. S. Department of Agriculture in a recent bulletin designed to show the great value and low cost to the motorist of the gasoline tax which now is levied in thirty-five States, compares this tax to the tolls which formerly were paid on toll roads. The survey shows that a trip from New York to San Francisco now costs the motorist something like $2.50 in gasoline taxes while on certain turnpikes in Virginia and Maryland tolls amounting to $5.05 were charged for a total of 187 miles. The comparison is interesting, but not entirely pertinent, since the average motorist today pays out considerable money in fees in addition to the gasoline tax which were not demanded of him in the days when toll roads were the rule rather than the exception. He pays higher registration fees, he still pays a luxury tax on the vehicle when he buys it, and often he has to pay a local State or municipal fee for the privilege of operating his car. If the gasoline tax were the only one levied specifically on the automobile owner it might operate very fairly; those who used the roads most would pay the most tax. In a majority of cases, however, the gasoline tax simply has been superimposed on existing levies as a means of raising more revenue from the motor vehicle owner.

In the Near Future It Is Expected That—

NEW model rumors coming through this week include one that a big low priced car producer, whose truck activities heretofore have been confined to light vehicles, probably will announce a 2½-ton model about the first of the year. A new roadster model is expected shortly in another low priced line, while engine changes are scheduled in one of the important cars selling between $1,000 and $1,200. Pyroxylin finish on all models of a large production car in the $850-$900 class also is predicted within the next few weeks.

Motor Car Values Still Top the List

THE relatively low price of automobiles as compared to most other commodities has been evident for some time, but Chevrolet statisticians have just completed a new set of figures which confirms more strongly than ever the statement that motor car values are particularly high. Their calculations show that taking a group of cars in the $1,500 class and a representative group in the less than $1,000 class, the price decrease since 1913 has been almost 50 per cent, while the price differential for all commodities as shown by Government figures is a 45 per cent increase over 1913. These conclusions are specially interesting in view of the recent price increases which have gone into effect on many lines of cars.

The Factory and Newspaper Advertising

TO insure proper and adequate advertising of its cars by its dealers, one of the well known car producing companies is taking over all responsibility for newspaper copy, which it will prepare and furnish to the papers in each city in which it has dealer representation. No charge on this will be passed on to the dealer, but will be handled by the factory through provision for it in the price of the car. As the company feels that a definite and continuing advertising campaign in local papers is necessary for the success of the line, it is undertaking to provide for it in this way. The cost of the advertising will be pro rated over all cars delivered in each district.

N. G. S.

Gear Manufacturers Discuss "New Uses" and "Shop Costs" at Annual Convention

Accounting systems, training of future mechanics, the trend in transmissions and spur gear speed reducers were other subjects taken up. Every member heard something of interest to himself.

By P. M. Heldt

A WELL attended meeting was held by the American Gear Manufacturers' Association at Briarcliff Lodge, Briarcliff Manor, N. Y., Oct. 16-18, about 80 members and guests being registered. Papers presented dealt with technical and commercial problems of the gear industry, and analyses and descriptions of new products in the automotive as well as the industrial branch, so that every member in attendance heard something of direct interest to him.

While no new standards or recommended practices were adopted, all of the sub-committees of the Standards Committee held meetings and made progress reports. The A. G. M. A. proceeds very cautiously in this matter, adopting a standard or recommended practice only after it has the almost unanimous consent of the membership; and in an industry with so much history as that of gear cutting this is not always readily obtained. Another factor that tends to retard progress is that the A. G. M. A. committees in a good many instances are collaborating with corresponding committees of other societies, and this makes it only the more difficult to secure complete agreement on any proposed standard.

Although the Association for some years has been practically blanketing the industry, so far as the more important firms in it are concerned, the membership is still growing, and at Briarcliff three new firms were elected, as follows: Cleveland Worm and Gear Co. of Cleveland, Ohio; Dodge Manufacturing Co. of Mishawaka, Ind.; Farrell Machine and Foundry Co. of Buffalo, N. Y.

Machine for Testing Gears

One of the subjects to which a good deal of attention was given at the meeting was that of the Lewis machine for testing gears. A contract to build one of these machines has been given to the Bilgram Machine Co. of Philadelphia, the price agreed upon being $4,000. According to a statement by Mr. LePage of the A. S. M. E., a sum of $3,700 had been pledged so far, and as in addition to the contract price there would undoubtedly be some incidentals and the freight charge to Cambridge, Mass., to be paid, additional funds were needed.

E. W. Miller of the Fellows Gear Shaper Co., made an earnest appeal for additional contributions, and the members present responded liberally, so that all the money needed to place the machine in the laboratory of the Massachusetts Institute of Technology is now assured. The actual tests on gears will be carried on by students of the Institute under the direction of Professor Porter, and under the supervision of the Gear Research Committee. A photograph of that part of the machine which had been completed was exhibited at the convention.

In accordance with a plan adopted at the last previous meeting, a paper was read on the subject of New Applications for Gears, the author being T. C. Roantree of the Westinghouse Electric & Mfg. Co. Following are some of the more important points touched upon in this paper.

In the past gears have come into general use merely because this or that particular product required them. Continued development of new products created new outlets. As orders come in we filled them, without thought as to whether there could not have been more gears used in this or that product, or whether such gears as were used might not have been so made or assembled as to have given better service.

Assistance Not Given

With few exceptions we have failed to give designers of mechanical products the assistance which we were in position to give. By taking professional interest in the way our gears are applied, we can assist materially in making them of greater value to the user. In the past we have given too little attention to this point.

There is no question in our minds that today we are producing a gear far superior in every way to those we produced as recently as 5 or 10 years ago. Great advances have been made in heat treatment, inspection and testing; and tooth form, spacing and proportion have reached a very advanced stage.

Better working conditions in gear shops have had an important effect on quantity and quality of gears turned out. One of the most frequent causes of unsatisfactory service is noise, and with the concerted effort of manufacturers to reduce this, the demand for noiseless operation has increased. The essential conditions for a quiet gear train are correct profile, proper alignment and careful assembly.

That we have erred in many cases is proven by the appearance of non-metallic gear material and the increasing use of chain drive. Gears have been replaced in many instances merely because their manufacturer could not attain the quality required. Of course, it is true that for some applications the substitutes mentioned are better adapted than metal gears.

Mr. Roantree referred to the occasional appearance in trade papers, etc., of advice regarding gears that to the professional man was simply ridiculous. As an example of what he referred to he mentioned the pin method of repairing gears with broken teeth (After pins are inserted into threaded holes in the rim of the gear they are supposed to be reduced to the form of a tooth by means of a file, and the inference was that satisfactory results could not be obtained in this way).

Cast and punched gears should be replaced by cut gears. More publicity should be given to the advances made in gear cutting practice. The author admonished the members to maintain a high standard of quality.

The many new machines constantly developed to replace handwork are a fertile field for investigation from

the viewpoint of possible use of gears. Cut gears should also be more largely used in agricultural machinery. It was suggested that in furtherance of the work of studying opportunities for new gear applications a committee might be appointed for each industry, such as the agricultural implement industry, the textile machinery industry, etc.

Thomas Haley of the Fawcus Machine Co. read a paper on Shop Costs. He said that—the cost accountant generally merely compiles and records facts. He has no control over the factors which determine costs nor over the use of the data compiled by him. This is a matter for the operating executive.

Executives in Touch with Operations

Gear making establishments mostly are of moderate size and the operating control is not far removed from the executive members who, in consequence, are generally well satisfied with the method of cost keeping. This cannot be condemned outright, because no system of cost keeping yet devised can entirely supplant human sagacity.

In the author's own company, labor is charged directly to the job in production. Shop overhead costs are prorated on jobs on the basis of predetermined rated machine hours. Cost includes depreciation on buildings and equipment, insurance and rent, all apportioned between machines by the square foot of floor space occupied; also depreciation on tools, power cost (apportioned) by rated horsepower and small tool expense at cost.

General overhead, which is under the control of the managing executive, is pro-rated on the basis of productive bonus. The total cost thus obtained is tabulated monthly and referred to the departments for examination and guidance in future operations. This system has proven very satisfactory during a six years period.

In discussing the Haley paper, C. B. Hamilton said that it recommended distributing the overhead on the basis of full time employment and that this was wrong. For instance, when running on a basis of only one-third full time employment only one-third of the overhead would be accounted for in the estimated cost. Mr. Haley said that what he really meant when he said full time was normal time; in dull times they would have to take a loss and in prosperous times they made up for this.

Training Future Mechanics

Erik Oberg, editor of *Machinery*, presented a paper entitled "How Are Our Future Mechanics to Be Trained?" He said there are four distinct methods by which the future workers of our industries may be trained. They are: First, the regular apprenticeship, amplified to meet present day conditions. For practically every large plant the regular apprenticeship system is one of the best methods. When no one shop in a locality is large enough to maintain apprenticeship courses on a modern basis, a type of cooperative apprenticeship system has been inaugurated. In some cases the boys work regularly in the respective shops where they are apprenticed, but attend a school maintained by the manufacturers on a cooperative basis two afternoons a week.

Second, the vocational or trade school, generally maintained by a city or municipality. Some cities are large enough to successfully engage in vocational education as part of the public school system.

Third, the cooperative high school where a boy acquires a general education especially suited for the life work in which he expects to engage, and at the same time actual shop experience in productive work in manufacturing establishments. Under this plan the boys work alternately two weeks in the shops and two weeks in school.

Fourth, the method variously known as the vestibule school, the shop training department, or the special apprenticeship, which is not intended to train all-around mechanics, but simply workers who will be proficient in the operation of some one line of machine tools.

As an example of the first method of training Mr. Oberg described the apprentice system of the Warner & Swasey Co. of Cleveland, which has been in continuous operation for forty years. This course includes class room instruction in addition to the shop training and is intended to give the boys a reasonably broad mechanical training and a foundation for future growth. In this particular shop many important positions are now held by former apprentices.

The question is often raised whether it pays to train apprentices, especially in view of the fact that as soon as they are through with their course many of them leave the firm by which they were trained. One company with a broad experience in this field states that the productive capacity of the apprentice is very satisfactory. He earns his pay. He is very steady and, therefore, the apprenticeship system strengthens the organization. And, last but not least, the fact that many of the apprentices later come to occupy important positions in the shop organization is one of the great advantages of the system.

S. O. White read a paper by W. A. McCarrell on "The Trend of the Transmission." It was essentially a description of the McCarrell Constantmesh Transmission, which has been dealt with already in the columns of AUTOMOTIVE INDUSTRIES.

Transmission Developments

Mr. McCarrell said the problem of changing speed had engaged the attention of automobile engineers ever since Levassor installed his first sliding gear transmission, which he regarded as an expedient. As long as automobiles were driven by mechanically inclined people this feature was not particularly troublesome.

Gearshifting, except when done by expert drivers, generally does not work as well as might be desired. Few drivers can shift from a lower to a higher gear with certainty and without causing noise. The difficulty of engaging a lower gear when coasting down hill makes the advantages offered by the use of the engine as a brake illusory. It has been attempted to overcome this drawback by using very light driven members in the clutch, but the combined inertia of this clutch member and the gear connected to it sets a limit to the progress which can be made in this direction. The so-called double shift must be used frequently, and the number of drivers who can make this shift properly is small even today.

The disadvantages referred to can be eliminated by a transmission of such design that the various reductions can be engaged in any reasonable sequence when shifting either up or down. Moreover, the effect of a dragging clutch must be reduced to a minimum, and in view of the competition in the transmission field the device must not be too expensive to manufacture. Moreover, in order to obviate the necessity for drivers to learn the operation of the gear specially, and thus to reduce sales resistance, the manipulation should be the same as with the standard transmission.

Mr. McCarrell explained that the first attempt to get away from the clash gear was the friction transmission which has disappeared. The next step was the constant mesh transmission with dog clutches.

After describing his transmission in detail Mr McCarrell summed up its characteristics as follows: The desirable feature of easy shifting under all conditions is combined with unusually quiet operation. Gear shifting is performed in the conventional manner, or if desired, some means of mechanical gear shifting may be employed. In addition, the simplicity of design permits economical manufacture.

The thought and publicity which have been given to devices designed to replace the sliding gear indicate the public demand for a better means of varying the reduction between the engine and rear axle. The fact that this broad flexibility is attained by only a slight diversion from present conventional design has a natural appeal from both the engineering and manufacturing viewpoints.

Transmission Committee Report

The Transmission Committee (A. P. Emmert, Chairman) made a progress report. Expressions of opinion had been obtained from automobile transmission manufacturers as to the ways in which the A.G.M.A. could best help them. It was found that what these men are most anxious to know is whether ground or unground gears are better and why? Whether carburized or oil treated gears are better and why? Whether stub or full depth tooth gears are better and why? What is the best method of checking gears and cutters, and whether there is any device indicating variations in sounds of gears and assembled transmissions?

It was stated in the report that good transmissions had been produced with every one of the features mentioned. However, a manufacturer who had modern equipment for and experience in the manufacture of carburized gears, and had learned to manufacture transmissions with such gears that ran quietly, could not switch around to oil-hardened gears and expect to get good results until he had installed the proper equipment and learned by experiment the best methods for producing such gears.

Attention was called to the fact that identical transmissions may be quiet on certain cars and noisy on others. Loose joints, whipping propeller shafts, loose mountings, chattering clutches, etc., affect quietness of operation and are beyond the control of the transmission manufacturer.

Transmissions must be made more quiet now than ever before, because the proportion of closed cars is greater and noises are more apparent and objectionable in a closed than in an open car.

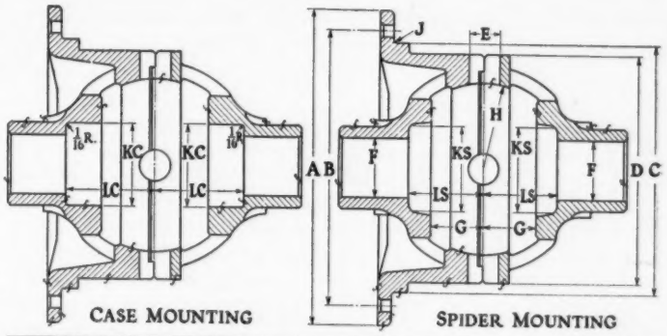
Standardizing Details

Referring to subjects in connection with automobile transmissions that lend themselves to standardization, the committee expressed the opinion that tolerances for center distances of case bores, parallelism of shaft bores in case, and bores of holes in case for bearings of various types, should be standardized. Tolerances for eccentricity of pitch circles, for backlash and limits for shaft ends were also suggested as subjects for standardization.

Reference was made to tolerances for flywheel housing bore (+0.005,—0.000 in. on the bore, maximum eccentricity, 0.005 in., corresponding to an indicator reading of 0.010 in., a maximum deviation of face of flange, when rotated around housing axis, 0.003 in., corresponding to indicator reading of 0.06 in.) and these tolerances were recommended to the A.G.M.A. Standards Committee for approval or adoption.

The differential committee submitted drawings of the detail parts of a general design of two-piece four-pinion differential in two sizes. The drawings cover the case, spider, side gears and inside pinions. Two case drawings are shown on the same sheet, one showing a case arranged for spider mounting of the side gears, (side gears supported entirely in the hub of the spider), the other for case mounting (side gears mounted entirely in the case).

One of the principal stumbling blocks in getting this standardization through in the past was in the gear tooth figures, and in the new drawings these are entirely omitted. This makes the blanks uniform, thus effecting economics as to forgings, forming tools, and tools and



CASE MOUNTING — SPIDER MOUNTING

MODEL	INSIDE GEARS	A	B	NO. OF HOLES	DRILL SIZE	C	D	E	F MAX.	G	H	J	KS	LS	KC	LC
1	18-10	7 5/8	±.003 6.625	12	21/64	+.000 −.002 6.000	5 1/2	±.001 .750	1 7/16	±.001 1.283	±.001 2.079	1/16 R	2 1/16	1 13/16	+.0015 −.000 2.000	2 1/8
2	20-11	8 1/8	±.003 7.125	12	21/64	+.000 −.002 6.500	6	±.001 .750	1 9/16	±.001 1.377	±.001 2.315	1/16 R	2 5/16	1 7/8	+.0015 −.000 2.063	2 3/8

fixtures for the interior dimensions of the case, but leaves the actual cutting of the teeth to the individual manufacturer.

The splines in the side gear hubs are not specified and are left to the individual manufacturer, but the committee hopes to compile a separate table of spline sizes suitable for these side gears. The design is intended as a Recommended Practice only, the wide variations in differential design making it unlikely that it would pass as a Standard. All that is expected is that designers, having these dimensions before them, will adopt them as far as practical.

A rather extensive progress report was made by E. W. Miller for the Nomenclature Committee. This committee has done a lot of work in selecting and defining terms for gear elements, types of gears and operations in gear cutting. Symbols for gear tooth elements, etc., will also be selected. In publishing the definitions of gear terms, simple drawings illustrating the terms will be worked up and appended. The work is not yet in a state of completion, but the general plan and samples of the definitions agreed upon were presented at the meeting and the report was accepted as a progress report.

The Metallurgical Committee, of which C. B. Hamilton is chairman, announced that it will recommend dropping the S. A. E. No. 1015 steel as a gear material, leaving only the No. 1020. It will also recommend revision of the steel castings specifications so as to make the manganese limits 0.40-0.60 per cent instead of 0.30-0.60 per cent. The committee also plans to present at the next meeting something on the economic factors governing the choice of bar stock, open hammer forgings and upsetter forgings.

T. C. Roantree made a progress report for the Committee on Non-Metallic Gearing. Certain tests which have been worked out by this committee for determining the properties of non-metallic gear materials will be submitted to the American Society for Testing Materials for review. It has been decided to abandon the tensile

split test, which is difficult to make. The committee plans to recommend the use of the Lewis formula for use in determining the strength of gears of non-metallic (phenol condensation) materials. A basic fiber stress of 6000 lb. per sq. in. (instead of the 8000 lb. commonly used for cased iron), is to be employed. In the matter of nomenclature this committee will follow the A.S.T.M.

The Keyway Committee, of which L. G. Nilsson is chairman, has been working together with a corresponding committee of the A.S.M.E. and the differences which are separating the two committees are being gradually eliminated, it appeared. Another questionnaire is to be submitted to the membership to seek light on the question as to whether two sets of tolerances on keys are desired, one for ordinary industrial work and the other for precision work and reversible drives.

A Recommended Practice for the inspection of shaper and rotary cutters will be submitted at the next meeting by the Inspection Committee, F. G. Eppley, chairman. The committee also has been requested to provide a means for indicating the helix angle of herringbone and helical gears.

A cup offered by *American Machinist* for the golf championship of the Association was won by R. P. Johnson of the Warner Gear Co.

The next annual meeting of the Association will be held at Pittsburgh beginning either May 7 or May 14.

New All-Weather Inclosure Affords Clear Vision

EASE of installation, freedom from rattles and clear vision are among the features of a new all-weather inclosure manufactured by the Glassmobile Co., Detroit. The equipment consists of glass panels which are as easily demounted as installed, and which can be carried in the car when not in use in a compartment provided for the purpose.

In the panel framework illustrated diagrammatically in the accompanying sketch, members *A* and *B* are of Parkerized alloy steel bar stock with a welded joint at *C*. The members *D*, *E*, *F* and *G* are galvanized channels with riveted joints which form a frame for the glass. The joint between *F* and *G* is not supported and, consequently, this construction gives a flexible, three-point suspension for the glass.

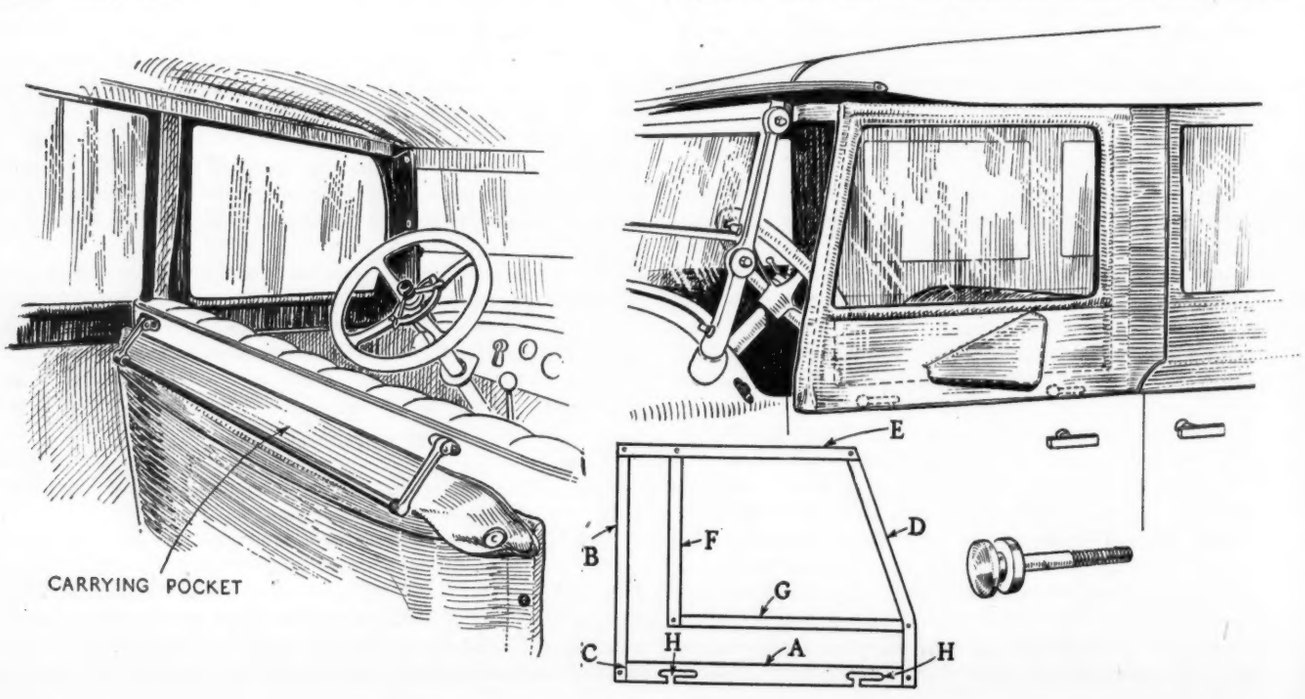
The entire framework is covered with two pieces of rubberized fabric designed to fit into the channels forming the frame for the glass, the fabric serving as a cushion between glass and metal.

Each door panel is supported by two grooved knobs with threaded stems which pass through holes drilled in the door and into nuts and are locked in place by riveting over the threaded ends. Interior trimming conceals the nuts. The knobs fit into the gun slots in the member *A* of the framework.

Door panels close against a cloth-covered wooden bumper strip permanently attached to windshield and one top bow. Attached to the bumper strip is a skirt of rubberized fabric, the edge of which is stitched to the top underneath the top covering. The upper end of the member *B* is bent slightly inward so that when the door is closed the flexing prevents rattles.

Joints at the forward edges of the front door panels are formed by a flap provided with snap fasteners which secure the flap to the windshield. The rear quarter panel also is held in place by snap fasteners.

Ventilation is secured by unfastening the flap on the front door panel and sliding it back, about three inches of motion being permitted by the gun slots. Since the panels are thin they can be stored in a small space, 3 in. of depth being all that is required. In five-passenger cars a compartment for the purpose is provided on the back of the front seat and, in seven-passenger cars, the panels can be stored in the top. The inclosures are said to be extremely durable, as the framework is rustproofed and the glass panels are mounted so there is little liability of breakage. In addition, once the bumper strips and supporting knobs have been installed, the panels are easily put in place whenever weather conditions demand. The weight of the complete equipment averages about 40 lb.



Refinement of Chevrolet Chassis Has Brought Numerous Detailed Changes

These include several alterations in brakes and rear axle, a straight I-beam front axle and pressed frame member supporting engine, vanadium steel gears and springs and new steering gear.

By Donald Blanchard

SINCE its introduction in the fall of 1922, the Chevrolet Superior chassis has been undergoing a continuous process of refinement and improvement. The general characteristics of the initial model have been retained, but numerous changes have been made from time to time with the result that the present product differs in many details from the original.

Extensive alterations have been made in both the brakes and the rear axle. Both sets of brakes have been enlarged and entirely redesigned. The drums have been increased from 10 to 11 in. in diameter and the width of the service brake is now 1½ in. instead of 1¼ in. The brake band levers used on the external service brakes and the cams on the internal emergency brakes have been replaced with toggle mechanisms.

Changes in the rear spring seat, brake cover and in the method of supporting the brake shafts have simplified greatly the construction at these points. Formerly the brake cover was riveted to a flange on a hub which was in turn riveted to the axle tube. The spring seat, to which the end of the rear spring was attached rigidly, was mounted as a loose collar on this hub. The bracket supporting the inner ends of the brake shafts also was supported from this hub.

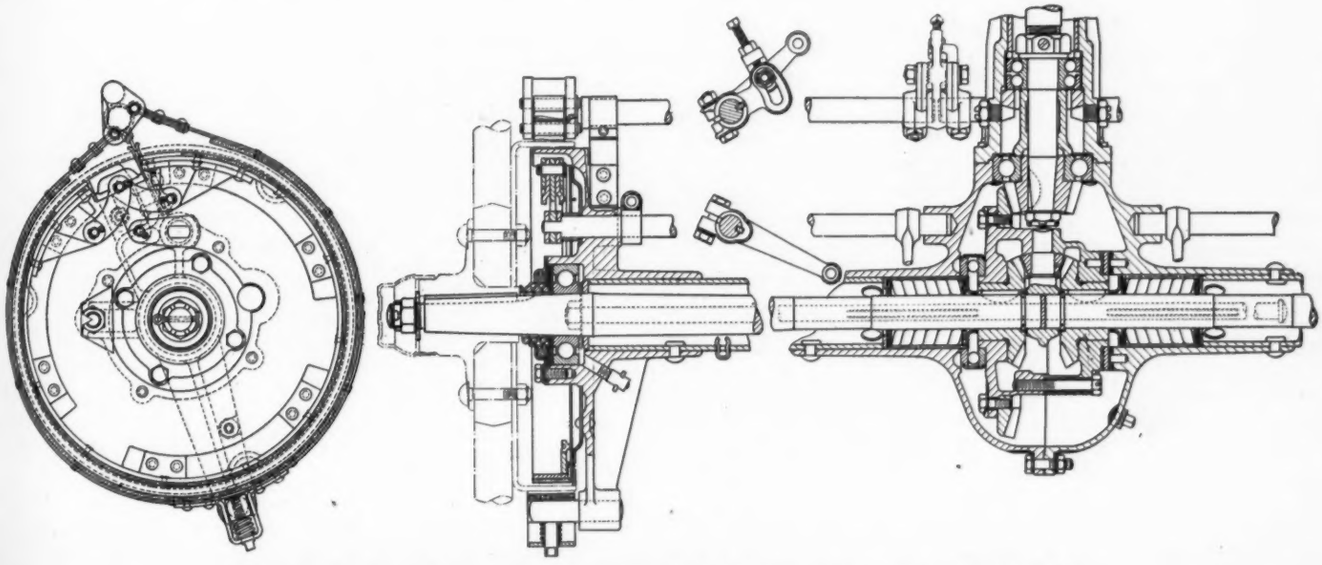
In the new design, the spring seat is riveted to the axle tube and has the brake cover riveted to it. The rear spring is provided with an eye and bushing which is assembled to the rear axle by means of a pin mounted in bosses on the top of the spring seat and secured by a cotter pin. The external brake band anchor pin is mounted in a bracket integral with the spring seat casting.

Service brakes are operated by a two-piece shaft extending across the axle and supported centrally by a boss on the bottom of the pinion tube flange and by brackets mounted on the spring seat castings at the outer ends. Hand brake shafts are supported by the brake covers and by bosses on the sides of the axle housing. Formerly two short brake shafts were used on each side, their ends being carried respectively by the brake covers and by the supporting brackets referred to in the preceding paragraph.

Rods have replaced the cables used previously for operating the brakes and, instead of supporting the idler levers by a hanger clamped on the torque tube, they now are carried on a cross shaft mounted on a bracket riveted to the third cross member. The levers on this shaft are linked by rods to the pedal and hand lever and to the levers on the brake shafts.

Brake Adjustment Improved

An improvement has been made in the adjustment on the service brakes so that more accurate equalization between the two bands can be obtained. This feature is illustrated in the accompanying sketch. The forgings *A* and *B* are keyed and clamped to the inner ends of the two pieces of the brake shaft. The lever *C* floats on this shaft between *A* and *B*, and is connected by a brake rod to the idler lever on the cross shaft. The inner face of the yoke on *A* is serrated as is the adjacent face on the lever *C*.

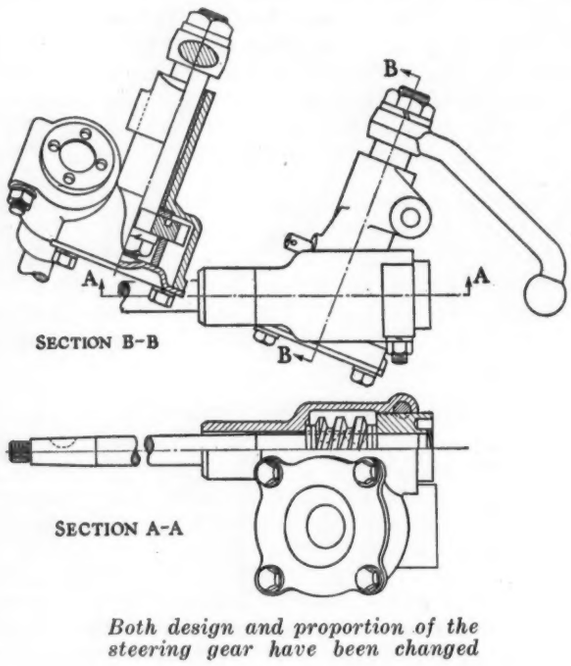


Changes effected in the braking system and the use of a ball bearing in the wheel hub of the Chevrolet are shown in the sectional drawing of the rear axle

In making adjustments, the nut on the clamping bolt *D* first is loosened and then proper conditions are obtained at the left brake by moving the lever *C* one or more notches forward or backward with respect to *A*, and by adjusting the length of the brake rod by means of a turnbuckle provided for the purpose. The right brake then is adjusted to duplicate the conditions at the left brake, and the lever *C* locked in position with respect to *B* by the screw and lock nuts *E* and *F*. The castellated nut on the clamping nut *D* then is tightened and a cotter pin inserted. Heretofore the adjustment on the service brakes was effected by means of a nut at the band.

Emergency brakes are operated through rods which connect levers on the cross shaft with levers on the inner ends of the brakeshafts. Both brakes are released by springs extending from the rods to the third frame member.

Use of New Departure single row, ball bearings in the rear wheel hubs instead of the roller type, has necessitated numerous detail changes at the ends of the rear axle. A felt washer, cover and spring retainer have been added at the wheel bearing to prevent oil leakage and to exclude dirt. The number of lubrication points has been reduced from nine to two.

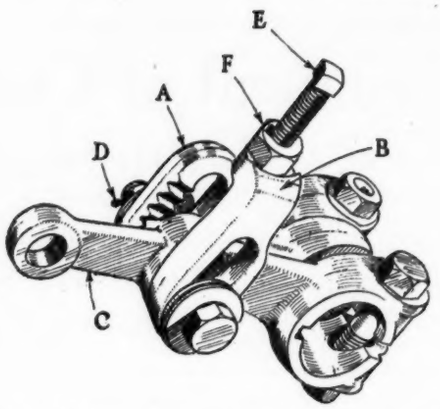


Both design and proportion of the steering gear have been changed

Road clearance has been increased by the adoption of a straight I-beam front axle and by raising the powerplant 1⅜ in. The frame cross member supporting the front end of the engine is now of pressed steel construction instead of malleable iron. To make the oil pump more accessible it has been removed from the front of the timing gear cover and mounted on the rear end of the generator. For measuring the oil level in the crackcase, a bayonet type gage is provided in place of the trycocks formerly installed for this purpose. Piston pins now are lapped after the finish grinding operation.

Clutch and gearset are unchanged except that vanadium steel gears are used in the latter. This steel is used also in the springs. To make the clutch collar oil fitting readily accessible, it has been provided with a tube which extends up through the floor boards of the driving compartment.

Formerly one side of the battery carrier was supported on the gearset housing and the other on the frame side rail. Now it is supported entirely from the side rail, the former construction having been abandoned because of the strains put on the carrier due to the relative motion between gearset housing and side rails.



Sectional view of improved adjustment which permits more accurate equalization of brakes

The worm and wheel steering gear and the bracket which supports it also have undergone extensive revision. The latter is riveted to the frame and is of much more rigid construction than formerly. The steering gear shaft now is supported in two bronze bushings and one has been provided also for the lower end of the steering wheel shaft. Endwise adjustment on the worm is effected by means of a large nut, which is locked by a taper pin.

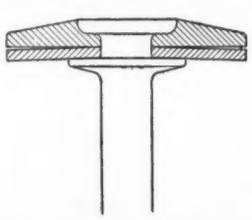
Both ends of the steering gear shaft are tapered and serrated, the worm wheel and steering gear arm being held in place by nuts and lock washers.

MANGANESE steel is not used for the manufacture of Ternstedt door hinges, as indicated by the headline of an article in our issue of Oct. 16 describing the production of these hinges. Specifications for the steel, given in the article, call for manganese limits of 0.60 to 0.90 per cent, but the steel used is a 0.15 to 0.25 per cent carbon product not properly termed "manganese" steel.

Advantages Claimed for New Valve

A POPPET valve with a two-piece head is manufactured by the Boyle Valve Co., 5821 South Ada Street, Chicago. It has a flat seat and therefore possesses the advantage of having a greater area of opening for a given lift than a taper seated valve. Other claims made for the valve are that it is more silent in operation and that it has a wiping action which keeps the seat clean.

In the illustration herewith the valve is shown raised off its seat. When the two-piece head is assembled on the stem, the upper end of the stem is heated red hot and is then riveted down. The resulting high pressure in the center of the disks causes their edges to slightly pull apart, leaving a small air space between them. This construction is said to make the valve practically silent and to demonstrate the advantage of this construction a Boyle valve and a one-piece valve were each in turn dropped on a vise. The one-piece valve gave out a sharp metallic ring, while the Boyle valve gave but a dull sound.



New valve which has two-piece head

When the valve is seated the lower disk is flattened out, causing the edge to move radially outward a slight amount, which is said to keep the seat clean so that regrinding is but rarely necessary.

Editorial

The Small Car

THE suggestion has been repeatedly made to our manufacturers recently that they take up the production of small cars, similar in design to the types that are so popular in Europe at the present time. One argument in support of this suggestion is that only by following it can we hope to do an appreciable amount of business in European countries, and another, that cars are being used more and more for short business trips, usually carrying one or two people, and that it is exceedingly wasteful to use a vehicle weighing 4000 lb. or more for the transportation of a single person.

These arguments are not devoid of logic, and it is therefore somewhat surprising that the tendency up to the present at least has been entirely the other way. There were numerous instances during the past year where the wheelbases of stock cars were lengthened, the piston displacements increased or the engine outputs augmented by increasing the speed of revolution.

The manufacturer gages the market through his dealers, and the dealers find that, except for those who are restricted to small cars by financial considerations, American buyers want roomy cars and "peppy" cars. As long as the proportion of cars exported is only 5 per cent of the total production and there is little hope of greatly increasing it, the wants of the American buyer will determine the design of our cars.

Perhaps the most potent reason for this difference in the demand in this country and Europe, respectively, is the higher degree of prosperity prevailing here. But there are other factors which help to explain the greater popularity of the large car here, including the relatively poor condition of many of our roads, our lower registration fees and lower fuel prices. In the course of time we may approach European conditions in respect to some if not of all of these conditions, in which case the small car will have a better chance here, but the change cannot be brought about rapidly.

Business Conditions

AT least two of the services which attempt to predict the future trend of business are agreed that conditions are improving and that they are likely to continue upward into the first of the coming year. That same feeling is being reflected and predicted in the activity of Wall Street at the moment. While there is rarely an advance without its slight reactions on the various exchanges of the country, a number of the men important in the Street are convinced that the trend is up. Car loadings, unfilled steel orders, bank clearings and the price of Pittsburgh scrap which are individually taken as key indicators seem to have influenced their belief.

Bradstreet's for Oct. 4 states that bank clearings for the third quarter and the nine months are the best in four years, that failures and liabilities for September are the lightest since 1920, that merchandise and miscellaneous commodities have made a new record and that hogs are the highest that they have been in two years.

These together with increased general business activity should reflect upon automobile sales in the coming months.

Temperature and Carbon Formation

TESTS made recently both at the Bureau of Standards and in connection with experiments conducted by Prof. E. H. Lockwood in the Mason Laboratory, Sheffield Scientific School, have shown that carbon formation is influenced to a marked degree by the load and consequent temperatures at which the engine is run.

In the Bureau of Standards test a cylinder head well coated with carbon as a result of using an excess of oil and too rich a mixture at moderate loads was replaced on an engine which then was run for less than two hours at nearly full load and a somewhat leaner mixture. As a result most of the carbon disappeared.

Professor Lockwood has discovered that an engine which knocks badly because of carbon deposits in the cylinder will quit doing so after some two or more hours running under the following conditions: The car with carbonized engine is made to accelerate as rapidly as possible by opening the throttle wide and keeping the spark fully advanced, until a speed of 25 or 30 m.p.h, is attained. Throttle then is closed and car allowed to coast until the speed decreases to about 10 m.p.h.

This cycle is repeated time after time with consequent alternate periods of heating and cooling until finally the knock, which at first is pronounced during acceleration periods, ceases.

While these two tests are not strikingly new in their disclosures, they serve to emphasize the fact that the conditions under which an engine is operated have a marked effect upon the formation or removal of carbon. They show also that much more exhaustive tests than are likely to be made by the layman are necessary to determine whether or not a given fuel or oil is responsible for the formation or elimination of carbon.

As in all research work it is necessary to control all variable quantities but the one under investigation in order to determine what effect this particular variable may have.

Our Industry Today—

Movement in Retail Car Demand Not Great Enough to Warrant an Expansion of Programs by Manufacturers

NEW YORK, Oct. 20—Some improvement is noted in automobile retail sales and deliveries to dealers, but the betterment is not great enough to cause any marked change in production schedules. Production is going along conservatively, manufacturers watching closely for any movement in the sales field that would warrant substantial expansion of program.

A few of the major producers are operating on schedules close to capacity, but the industry as a whole is following the normal production curve. Should nothing unforeseen happen, it is likely that October output will advance above that of September, owing chiefly to the longer working month and the slight improvement that has come during the early weeks.

Heavy Buying Predicted

Dealers are predicting comparatively heavy buying during the remaining months of the quarter, a period of the year when sales are normally slow. Their outlook is based to some extent on the likelihood that the farmer will become a more important factor in buying than he has been heretofore. Although this improvement has greatly improved due to good crops and high prices obtained for them, the farmer has made no strong impression as yet on automobile sales volume. Some sales have been made in agricultural regions, but they are slight in comparison with the potential market.

That this market will show vast improvement before the end of the year is regarded as probable by both manufacturers and dealers, although its full development is not looked for until after the first of next year. To bring about the development as early as possible, retailers are launching aggressive sales campaigns which will continue through the rest of the fall and through the winter months.

Cars Not Being Stocked

No preparations are being made by the industry to meet an extraordinary demand for cars in the spring of 1925. Output for the present is going as a rule directly to owner-consumers, dealers keeping minimum stocks on hand and replenishing them only as necessity justifies. There is no forcing of cars on dealers.

Demand is running strongly toward the closed car, being stimulated by shows featuring this type in important distributing centers of the country. There is little delay in meeting the present buyer-demand.

Truck buying is on an even keel, and bus production and sales are showing steady advances due to increasing popularity of this type of vehicle.

Columbia Equipment Is Sold for $112,500

Winternitz & Tauber Buys It—Plant Itself Yet to Be Disposed Of

DETROIT, Oct. 22—Confirmation of the bid of $112,500 for all the machinery and plant equipment and personal property of Columbia Motors Co. ends all possibility of reorganization and removes the plant from any activity in the industry indefinitely.

This bid by Winternitz & Tauber of Chicago, auctioneers and liquidators of defunct companies, was confirmed in Federal Court today. A bid of $72,000 for the plant itself and the property on which it stands was not confirmed and the Security Trust Co., trustee in bankruptcy, was ordered to sell it at private sale.

The bid on the plant and real estate was made by E. P. Hammond, president of the Gemmer Manufacturing Co., which it was understood, would take the plant over for manufacturing purposes if the bid were confirmed. The property was subject to mortgage, back rentals and taxes of approximately $420,000.

A bid on the entire property, real estate and personal property of $135,000 was made by E. P. Caswell, in the interest of stockholders. Thirty thousand dollars was bid on finished cars, 57 in number, by Warshawsky & Co., Chicago, and a bid of $6,000 on office equipment by Winternitz & Tauber.

These bids on individual items were made unacceptable by reason of the fact that no bids were entered on four other items, machinery and plant equipment, production, stock and materials, Columbia service and Liberty production stock. The bid on the entire property was below bids on the separate parcels.

WILL PROVIDES FOR MUSEUM

NEW YORK, Oct. 23—Under the will of Henry R. Towne, formerly head of the Yale & Towne Manufacturing Co., provision is made for the establishment of a "Museum of Peaceful Arts" in New York. The exact amount of the bequest for this purpose is unknown but estimates place the sum at close to $2,000,000.

Mr. Towne provides a specific trust fund of $50,000, the income of which is to be used for "a campaign of education, news and publicity designed to bring prominently to public notice essential facts concerning the great industrial museums of Europe."

Haynes Automobile Co. Is Declared Bankrupt

INDIANAPOLIS, Oct. 22—The Haynes Automobile Co. of Kokomo, Ind., was declared a bankrupt by United States District Judge A. B. Anderson today, who referred the case to Harry C. Sheridan of Frankfort, referee in bankruptcy.

An involuntary petition was filed against the Haynes company on Sept. 2 by the Chicago Tool & Kit Co., the Grinding Wheel Clearing House of Detroit and H. Merrifield of Chicago.

The schedule of assets and liabilities filed with the court on Sept. 2 showed assets of $1,684,000 and liabilities of $3,619,000. Of the assets $650,000 was listed as real estate, $200,000 machinery and $320,000 outstanding debts.

Company Being Formed for Canadian Roamer

TORONTO, ONT., Oct. 22—The Roamer Motor Car Co. of Canada, Ltd., has taken over a large factory in Toronto where it will manufacture custom built cars. The company has bought the Canadian patent rights of the Roamer Motor Car Co. of Kalamazoo and expects to turn out 500 cars during the first year of operations.

The organization of the Canadian company is still under way but it is understood that the capitalization will be $2,000,000. A. C. Barley of Kalamazoo will be president and W. H. Parker of Montreal will be vice-president and general manager. A bond issue of $150,000 is now being subscribed for.

Ford September Output Reached 149,906 Total

DETROIT, Oct. 22—Domestic production of the Ford Motor Co. in September is reported at 149,906 cars and trucks as compared with 140,376 in August and 140,253 in July. September foreign production was 11,704.

For the nine months ended September domestic output reached 1,412,930, an increase of 14,498 over the corresponding period in 1923. It is expected that October output will approximate 150,000 cars and trucks.

Piston Ring Makers Form Consolidation

No-Leak-O Is Subsidiary of Piston Ring Co.—Maintains Separate Identity

DETROIT, Oct. 21—Consolidation of the Piston Ring Co. and the No-Leak-O Piston Ring Co., both of Muskegon, has been effected, and dating from Nov. 1 they will operate as one company, the Piston Ring Co. being the parent and the No-Leak-O Company a subsidiary.

The latter company will maintain a separate identity but will be operated as a division of the main company though separately organized. Previously the Piston Ring Co. was the manufacturer of all products for the two companies, the No-Leak-O maintaining separate sales and service departments through which it merchandised its special brand of rings.

The affairs of the new company will come under the management of the Piston Ring Co. as at present constituted. The two companies will continue to merchandise the types of ring with which they have been identified, the parent company in the plain ring field and the subsidiary in the grooved ring field. The combination of the two types of rings within the one company is regarded by the companies affected as specially advantageous and will permit of economies in various ways which will work to the advantage of the trade.

L. F. Iverson will continue as manager of the service division devoting his time principally to plain rings and L. G. Matthews of the No-Leak-O staff will have direct management of the grooved ring department. J. E. Norwood, Jr., son of the inventor of the No-Leak-O ring, will be retained in the organization.

Motor Truck Industries Will Meet Nov. 19

DETROIT, Oct. 21—The annual meeting of Motor Truck Industries, Inc., will be held Nov. 19 at the Detroit Athletic Club. The meeting will be divided into two sessions and all manufacturers of trucks will be invited to attend. At the open sessions, which will be devoted to discussion of the truck and bus market, several prominent speakers will be introduced.

JOSEPH N. SMITH CO. MOVED

DETROIT, Oct. 20—The Joseph N. Smith Co., manufacturer of body hardware, is now located in the former Englander plant, on Federal Avenue near Junction. The former plant of the company on Grand Boulevard has been sold.

F. E. Brown has been appointed in charge of engineering and production at the Smith company and will become an officer and director, according to a statement by Cass G. Selden, president. Under Mr. Brown's direction the company plans to expand its windshield division.

Business in Brief

Written exclusively for AUTOMOTIVE INDUSTRIES *by the Guaranty Trust Co., second largest bank in America.*

NEW YORK, Oct. 22—The flotation of the American quota of the German loan, amounting to $110,000,000, was the outstanding economic event of last week. The loan was greatly oversubscribed, and the price immediately rose several points. Slight recessions were noted in some lines of trade and in general commodity prices. Favorable weather reports from the South caused a reaction in the price of cotton, while wheat quotations rose as a result of heavy export buying.

Car loadings in the week ended Oct. 4 numbered 1,077,006, comparing with 1,087,447 in the preceding week and 1,079,776 in the corresponding period last year. Loadings of grain, merchandise and less than carload freight set new high records.

Production of crude petroleum in the week ended Oct. 11 averaged 1,984,000 barrels a day, which compares with 2,010,450 barrels a day in the preceding week and 2,125,350 in the corresponding week a year ago. The current figure is the lowest since last July. The principal decline occurred in Oklahoma.

Preliminary figures of foreign trade for September show exports of $427,000,000 and imports of $285,000,000, which compares with exports of $331,000,000 and imports of $255,000,000 in August and exports of $381,000,000 and imports of $254,000,000 in September, 1923. Both imports and exports were the largest September totals since 1920. The export balance of $142,000,000 compares with $76,000,000 in August and $128,000,000 a year ago, and is by far the largest of the year to date.

Fisher's index number of wholesale commodity prices, after three successive advances, receded slightly last week, standing at 151.9, as against 152.5 in the preceding week.

Discounts by Federal Reserve banks declined $3,300,000 during the week ended Oct. 15, while open market purchases increased $21,900,000 and the holdings of Government securities increased $17,300,000.

Thompson Made Head of Model Body Corp.

Company Is Reorganized, New Capital Secured and Expansion Planned

DETROIT, Oct. 22—The Model Body Corp. has been reorganized and additional capital put into the business for expansion. The production of passenger car bodies will be continued, but in the future the company will also specialize in bus and commercial bodies.

Walter F. Thompson has been elected president and general manager of the company to succeed G. L. Gast, who becomes vice-president. George Mercer and C. Lester French continue as secretary and treasurer respectively.

Mr. Thompson served his apprenticeship in the body business in the factory of Thrupp & Maberly, London, England. Since that time he has been associated with the Peerless Motor Car Co., the Cadillac Motor Car Co., the J. C. Widman Co. and the body division of the Pullman Co.

Comptroller of Paige, Sherman L. Depew, Dies

DETROIT, Oct. 22—The funeral of Sherman L. Depew, comptroller and a director of the Paige-Detroit Motor Car Co., was held from his Grosse Pointe home this week. Mr. Depew died suddenly Monday night while aboard a train returning from the hunt contests at Myopia near Boston. He was one of the founders of the Paige-Detroit company in 1909 and has been a member of the board of directors since that time. His connection with the industry covered 20 years. Mr. Depew was a nephew of Chauncey M. Depew.

He was born in Detroit and his business career has been centered in the manufacturing activities of the city. As a founder of the Paige-Detroit company he had been a prime mover in the development of that company and many of its achievements are accredited to him. He leaves a wife and two children. Mrs. Depew was a daughter of Hazen Pingree, one time governor of Michigan.

VICTOR TRUCK IN EUROPE

ST. LOUIS, Oct. 21—Agencies for the Victor truck, manufactured by Victor Motors, Inc., have been established in Germany, Holland and England, according to V. George Harper, export manager, who has just returned from an extended European business tour. Mr. Harper declared that conditions in Europe were much better than he had anticipated, with an optimistic note in financial circles because of the Dawes Plan.

9 Per Cent Increase in Hupp Operations

Third Quarter Mounted Above Last Year—September Sales Greater Than August

DETROIT, Oct. 22—Hupp Motor Car Corp. reports manufacturing operations for the third quarter of the year to be 9 per cent greater than for the same quarter last year. Sales in September were 11 per cent higher than in August, and it was also the fourth consecutive month in which sales have exceeded those of the previous month. October operations are on a higher basis than for October last year.

For the quarter ended Sept. 30, 1924, the corporation reports net profit of $492,136 after Federal taxes. This is equivalent to 53 cents a share, par value $10, earned on outstanding $9,138,090 common stock and compares with $298,085 or 31 cents a share on common in the preceding quarter after preferred dividends. Net profits for the nine months reached $1,182,342 after Federal taxes of $1.29 on common.

Closed Car Output Increases

Heavy demand for closed cars has resulted in production on these models being increased to 85 per cent of the total output during the present month. In September the closed car proportion of the total was 56 per cent, and for the first nine months of the year the closed car average was 49 per cent, including Canadian and export sales.

Dealers report the demand for cars as being surprisingly good, according to O. C. Hutchinson, general sales manager. Industrial districts are maintaining a steady demand for cars, and the demand in the agricultural districts is also strong. The Kansas City district in particular has come to the front in surprising fashion, Mr. Hutchinson said.

Export sales are continuing at a high figure. For the first nine months of the year they were 16 per cent higher than for the same period last year. September shipments more than doubled those for the preceding September. Dealers' stocks are abnormally low.

Hildreth Directs Sales of Publishing Companies

PHILADELPHIA, Oct. 22—Joseph S. Hildreth, advertising sales manager for the State of Ohio for the Class Journal Company and the Chilton Company, has been appointed sales director for both companies for the entire country, beginning Nov. 1.

Mr. Hildreth, now located in Cleveland, will move to the headquarters of the Chilton Company in Philadelphia and from there will direct the sales activities of all the publications of the two companies.

Mr. Hildreth has had a long and constructive career in the advertising sales field. He began in the daily paper field and entered the automotive business paper field with *Motor*. Later he became a partner in the ownership of *Horseless Age*, and since 1918, when that publication was purchased by the Class Journal Company, has had the management of sales in the State of Ohio.

Mr. Hildreth possesses not only a keen knowledge of advertising sales, but also has executive ability, both of which fit him for his new field of effort.

Fremont Motors Placed in Hands of Receiver

TOLEDO, Oct. 20—Frank H. Snyder of Fremont, Ohio, has been appointed receiver of the Fremont Motors Corp. by Federal Judge Killits on application of three creditors with claims aggregating in excess of $500.

Fremont Motors was organized in Fremont five years ago as successor to the Lauth-Jeurgens Motor Truck Manufacturing Co. It began manufacturing motor trucks, but because of the high cost of materials and lack of working capital, curtailment of operations became necessary and for the last two years work has been more or less suspended.

$350,000 in Bonus Checks Distributed by Packard

DETROIT, Oct. 18—About $350,000 was distributed Wednesday among employees of the Packard Motor Car Co. in recognition of service records of five years or more. One-third of all the employees participated in the distribution, that number having been with the Packard company for a five-year period or longer.

Each bonus check was accompanied by a letter from President Alvan Macauley, in which he pointed out the unusual service records of Packard employees and urged a continuance of close cooperation to continue prosperity for the company and its workers.

C. C. Springs Shuts Down at Kalamazoo and Moves

KALAMAZOO, MICH., Oct. 20—The plants of the C. G. Spring & Bumper Co., one located on "Bumper Hill," the other on Eleanor Street, ceased operations Saturday night, and this week all materials and equipment will be loaded and shipped to Chicago and Detroit, where the concern will carry on operations in the future.

While both plants were under production to the last minute, the cutting down process started three weeks ago. Only about 100 men remained for the last pay day in Kalamazoo. A large part of the force employed here will follow the concern to Chicago, where a new plant has been erected to take care of production previously handled in Kalamazoo.

F. C. Jacobs, special sales representative in the Michigan and Indiana territory, will travel out of Kalamazoo.

Discuss Marketing Replacement Parts

Papers at Meeting Under S. A. E. Auspices Stress Need of "Dependability"

NEW YORK, Oct. 18—In the first inning of a two-meeting discussion of the marketing of replacement parts, under the auspices of the Metropolitan Section of the Society of Automotive Engineers here last night, the dominant note was a plea for recognition of dependable replacement parts as a necessary means of providing maximum owner service and satisfaction.

It was voiced in all of the papers and the discussions that followed them, and it was strengthened by the recommendations of the Automotive Equipment Association, which were presented by Earl V. Hennicke, vice-president of the Moto-Meter Co. and chairman of the A. E. A. Board of Directors.

Manufacturers' Inning Next

This was the parts makers' and distributors' inning. Next month the manufacturers will have their "say."

The program included three papers, presented by J. C. Gorey, head of the Gorey Automotive Parts Co., who dealt with the subject from the standpoint of the distributor of parts; J. P. Orteig of the Orteig Motor Co., whose paper argued from the viewpoint of the manufacturer of parts for "orphan" cars, and H. J. Houpert of the Houpert Machine Co., who spoke as a manufacturer of replacement pistons, rings and piston pins.

The A. E. A. recommendations for merchandising replacement parts were:

1—Greater standardization of the parts' use. Work toward elimination of specifying odd sizes and changes with every new model.

2—Further establishment of recognized channels of distribution of dependable replacement parts.

3—Provision for supplying sales and service organizations with more intelligent information about stocking and selling replacement parts.

4—Better and more complete interchangeability lists.

5—An advertising program to reach the motoring public, selling them the importance of getting "full service from their cars" by patronizing well equipped shops. Before launching such campaign, however, it would be necessary to see that all modern shops, both of car dealers and independent, were in a position to supply dependable replacement parts.

Definition of "Dependable"

"Dependable" replacement parts were defined as parts carrying a well-known trademark and backed by the reputation of a reliable firm; uniform in quality 12 months in the year; made to conform to car manufacturers' specifications and supplied in standard and all oversizes.

Haynes Is Prophetic On His 67th Birthday

Says Small, Lightweight Automobile at Low Cost Will Be Car of Future

KOKOMO, IND., Oct. 18—A small, lightweight automobile, economical in operation and having a low first cost, will eventually supplement the larger and heavier automobile of today—in the opinion of Elwood Haynes, pioneer manufacturer and inventor. Mr. Haynes celebrated his sixty-seventh birthday here Oct. 14, a quarter of a century after driving the original Haynes, which now is in the Smithsonian Institute, down the streets of this city.

The small car which Mr. Haynes has in mind would not replace big automobiles, but would fill a need, as he sees it, that exists today.

"Take my case," he said in an interview both reminiscent and prophetic. "If I want to go down to the business district, I take the family car, a machine weighing 4500 pounds. If I had one of these small cars I certainly would not bother with the heavy machine, which is unwieldy in traffic and hard to park in a limited space.

"The small car of the future will be built very low and probably have a tread narrower than the present standard. It will be of two-passenger capacity. Its chief advantages will be fuel economy—40 or 50 miles on a gallon of gasoline—and ease and convenience of handling. Incidentally a machine of such construction would be a great aid toward solution of congestion, since it would take up less room when it is parked or when moving in the traffic stream."

The little car visualized by Mr. Haynes will be primarily for city driving, although, he thinks, the increasing number of paved roads would make it practical for many long trips.

New "Bay State" Company Capitalized at $100,000

BOSTON, Oct. 22—The R. H. Long Trading Co. has been formed here with headquarters at Framingham, capitalized at $100,000, with 1000 shares of a par value of $100.

The articles of incorporation state that the company will trade in merchandise of every description, manufacture and deal in automobiles, automobile accessories, boots, shoes, shoe machinery and equipment.

The company has taken over the former organization manufacturing the Bay State car, which has been in the hands of receivers.

DEPENDABLE TRUCK SOLD

GALESBURG, ILL., Oct. 22—The Dependable truck plant in this city has been sold under order from the United States Court to D. C. Halper for $17,600. The sale was a sequel to the recent bankruptcy proceedings in which a judgment was awarded to the Mutual Loan & Building Association of Galesburg for $13,000. The new owner has not announced what disposition he will make of the plant, or whether the manufacture of motor trucks will be resumed.

Former Stevens-Duryea Plant Sold Body Maker

SPRINGFIELD, MASS., Oct. 22—The Springfield Body Corp. has bought the property of Stevens-Duryea Motors, Inc., consisting of plant, buildings, water rights and 34 acres of land, in Chicopee.

George B. Caldwell, president of the purchasing concern, said that part of the plant will be devoted to the manufacture of bodies for buses and taxicabs, and the rest will be used as a storehouse for the use of automobile dealers of Springfield and vicinity. He states that bodies for passenger cars would continue to be made in the Springfield Body Corp.'s plant in West Springfield.

Attorney Charles H. Beckwith, representing Stevens-Duryea Motors, says that this company will continue to make use of space in the Rauch & Lang factory, close by, as it has for some time. The Stevens-Duryea plant was acquired by Raymond M. Owen last year, and the new Stevens-Duryea Motors, Inc., was formed.

Hugo Stinnes Interests Acquire Aga Motor Works

WASHINGTON, Oct. 20—The Hugo Stinnes interests of Germany have acquired the Aga Motor Works of Berlin, a concern manufacturing small motor cars which has been in financial difficulties for the last eight months. The company is to be made a subsidiary corporation of the Dinoswerke A. G. Co., which is already owned by the Stinnes interests and which manufactures cars, tractors and automobile parts.

The real importance of the merging of the two companies, says a cable to the Department of Commerce, will mean the saving of the turnover tax, which is otherwise due every time a raw material or a semi-finished product changes hands. The Dinoswerke company will discontinue the manufacture of complete cars and will only manufacture parts for the Aga company in the future. Under the German law the two companies being owned by the same interests can save this turnover tax.

BODY BUILDERS' DINNER

NEW YORK, Oct. 21—The mid-winter dinner of the Automobile Body Builders Association will be held at the Waldorf Astoria, this city, on Tuesday evening, Nov. 11, a date that comes in the week of the annual automobile salon, held in the Commodore Hotel.

Ford's Shoals Bid Formally Withdrawn

Sends Letter to President Coolidge Complaining of Slow Action by Congress

WASHINGTON, Oct. 18—The formal withdrawal by Henry Ford of his $5,000,000 offer for Muscle Shoals was received by President Coolidge today, the President making public both the Ford withdrawal and the White House reply.

Mr. Ford's letter, dated Oct. 15, reminded the President that his offer had been pending since July 8, 1921, and said he was not willing to wait any longer for the Government to act. The official text of his letter follows:

"On July 8, 1921, there was submitted to the War Department upon their invitation to the writer, an offer for the Government property at Muscle Shoals. After many conferences, hearings, etc., this proposal was amended on Jan. 25, 1922, in which form it is still pending in Congress. Inasmuch as so much time has already elapsed we are unable to wait and delay what plans we have any longer for action by Congress, and I am, consequently, asking that you consider this as a withdrawal of said offer."

Hopes for Reconsideration

The President's reply, expressing hope that Ford would reconsider his withdrawal, follows:

"Your letter withdrawing your offer for the purchase of Muscle Shoals has been received. On account of the delay and probable shifting in conditions, I can understand how you may feel justified in not keeping your offer open for a longer period. I trust, however, that should the Congress conclude that it is best to restore this property to private ownership, you will at that time renew your interest in the project."

Under an agreement reached before Congress adjourned last spring, the Ford offer for Muscle Shoals, already approved by the House, is to come up in the Senate as soon as Congress convenes, in December.

Meanwhile the War Department intends to take no action toward disposition of the property, Secretary of War Weeks announces. In the event, however, that the power plant at Muscle Shoals is completed before Congress has made plans for disposition of the property, Secretary Weeks said the War Department would assume temporary responsibility in disposing of surplus power that might be developed. The plant is expected to be completed about July 1, 1925.

AMERICAN BEARINGS SALE

MILWAUKEE, Oct. 20—Assets of the American Bearings Co. will be offered for sale at public auction by the receiver, James W. Bryden, on Friday, Nov. 14, according to official notice sent to creditors. The sale will be conducted at the offices of the plant at Forty-seventh Avenue and Rogers Street, in West Allis, suburb of Milwaukee.

Dirigible Twice Size of ZR-3 to Be Built

Goodyear - Zeppelin Co. Announces Plans for New Trans-Atlantic Dirigible

AKRON, OHIO, Oct. 22—A Zeppelin airship of 5,000,000 cu. ft., which is to be twice as large as the ZR-3, will be built by the Goodyear-Zeppelin Corp., according to Paul W. Litchfield, vice-president and general manager, and will be designed especially for transatlantic service.

Working plans will be started immediately upon the arrival of Dr. Karl Einstein, chief of design of the German Zeppelin Corp. Dr. Einstein is expected to leave Germany in two weeks with a staff of 12 designers.

Mr. Litchfield stated that plans for building a Zeppelin intended especially for transatlantic service were held up pending the successful termination of the flight of the ZR-3.

Yilton Arrives Home

NEW YORK, Oct. 23—According to J. M. Yilton, engineer of the Goodyear Tire & Rubber Co., who arrived from Europe yesterday, the Goodyear company has under construction six dirigibles, the largest of which has a capacity of 719,000 cu. ft. Mr. Yilton supervised the construction of the ZR-3 as a representative of the Goodyear company.

Forming Holding Company

NEW YORK, Oct. 21—At a dinner given here in honor of Dr. Hugo Eckener and the officers who helped him fly the ZR-3 from Germany to the United States, it became known that a holding company for all the varied airship interests in the country is being organized. This company is said to have extensive backing and it was said that a firm of New York lawyers is now drawing incorporation papers.

Fullam Predicts New Era

WASHINGTON, Oct. 22—A new era of transportation is predicted by Rear Admiral W. F. Fullam, U. S. N., in a copyright article written this week for the International News Service, expressing his view on the performance of the ZR-3 and the possibilities of successful commercial operation of such ships.

Performance of the ship in flying 5000 miles at an average speed of 65 m.p.h. demonstrates, he declares, that "nothing can stop the march of Zeppelin navigation" and predicts that the early future will see regularly operated airship lines, carrying freight and passengers.

The automobile industry, he points out, has already demonstrated that it has the facilities for building the necessary power, while there are already two corporations in the United States ready and competent to build dirigibles and operate ship lines.

These are, he says, The Goodyear company of Akron, builder of balloons and dirigibles during the war, and a corporation headed by Major General Clarence Edwards, located in Boston, and owner of the Schuette-Lanz patents.

The new system of transportation, he concludes, "is only a matter of a very few years."

SMITHSONIAN WANTS OLD MODELS OF CARS

WASHINGTON, Oct. 22—Plans are being made by the Smithsonian Institute to collect and preserve, for future generations, early models of automobiles which have either made a transcontinental trip or taken part in early automobile races.

The collection is being made by Carl W. Mitman, curator of engineering of the Institute. He has already collected nine old-fashioned motor cars, which are among the museum exhibits. The plan is to enlarge the exhibit.

One particular car which the museum is trying to locate is one that traveled from New York to Paris, by way of Alaska, about 1900. If this car can be found the curator will provide a special place for its exhibition. With the racing models obtained, the collection of cars at the Smithsonian will probably be larger than any display of the same character in the country.

Association in Germany Opposes Proposed Duties

NEW YORK, Oct. 22—According to a cable dispatch to the New York *Times* from its correspondent in Berlin, the Automobile Traders' Association has petitioned the Federal Economic Council against the Government's proposed prohibitive duties on motor cars.

The association figures that on American cars costing less than $1,000, the duties would work out at something between 121 and 194 per cent ad valorem and on cars costing between $1,000 and $2,500, the ad valorem charge would range between 62 and 110 per cent. The petition demands that the duty on cars under 1000 kilos in weight shall not exceed 30 marks for each 100 kilos.

NO FORD PLANT IN MEXICO

DETROIT, Oct. 23—At the offices of the Ford Motor Co. denial was made of the report that the company is planning to build an assembly plant in Mexico. The report is believed to have arisen from the activities of an agent in building a service plant where partial assembly is carried on.

Deliveries at Retail Decline in Michigan

Total 12,345 in September as Compared with 12,462 in Previous Month

DETROIT, Oct. 22—Deliveries of new cars at retail in the State of Michigan for September totaled 12,345, which compares with a total of 14,754 for the same month last year, and 12,462 in August. Truck deliveries for the month were 1161, which compares with 1483 for September, 1923, and with 1031 in August, this year.

Ford car deliveries in September totaled 5976, or 48.4 per cent of the total, practically the same percentage as of the same month last year. Low priced cars, including Ford, made up 63 per cent of the September total, a drop from a total of 70 per cent set up last year. Cars up to and including the $1,000 price class in September absorbed 76.5 per cent of the total business, about 1 per cent under the percentage last year. Cars in the medium priced field with 20.5 per cent of the total deliveries, showed a gain of slightly more than 1 per cent. High priced cars maintained a figure of about 3 per cent of the total.

Four of five manufacturers in the low priced field show decreases from last year's business, while nearly all manufacturers in the $700 to $1,000 price class show gains. In the medium price field there is a general falling off from the last year's total, only one manufacturer showing a substantial gain.

In the truck field, Ford Motor Co. with 817 deliveries takes up the largest part of the 1161 total, with other manufacturers of light delivery cars making up about 90 per cent of the gross business. In the heavy duty field, some manufacturers show nice increases, these being counterbalanced, however, by decreases among other leaders.

Canadian Goodyear Pays Dividend of 3½ Per Cent

TORONTO, ONT., Oct. 22—Preferred stockholders of the Goodyear Tire & Rubber Co. of Canada have received their dividend checks of 3½ per cent, made up of the regular quarterly dividend of 1¾ per cent and a payment of 1¾ per cent on account of arrears.

Accompanying the checks was a letter from C. H. Carlisle, vice-president and general manager, in which he stated that the company closed its business for the current year on Sept. 30 with a satisfactory profit.

Mr. Carlisle stated that the company has no indebtedness, excepting current bills that are not due for discount and that no money had to be borrowed in the fiscal year just ended.

During the year a material addition was made to the surplus and reserve accounts, Mr. Carlisle said.

MEN OF THE INDUSTRY

Nephler Distributing Cars

C. J. Nephler, former sales manager of the Oakland Motor Car Co., has formed the Nephler-Oakland Co., with headquarters in Pontiac, Mich., to take over the wholesale and retail merchandising of Oakland cars in Oakland, Livingstone and Lapeer counties.

Promotions by Ditzler

L. E. DuBey has been promoted to factory manager of the Ditzler Color Co. with general supervision of factory operations and direction of research and experimental and development work. F. A. Holloway has been made factory superintendent in direct charge of factory operations. Neil A. Fleming has been appointed assistant sales manager and in charge of advertising and Ernest Hummitch has been made office manager. The changes, the company states, have been made necessary to meet increased business.

MacCorquodale and Chamberlin Resign

A. R. MacCorquodale, vice-president, and C. P. Chamberlin, chief engineer of Joseph N. Smith & Co., Detroit, have resigned and have opened offices in the Penobscot Building, Detroit.

J. G. Bell in New York Office

J. G. Bell, who has been associated with the home office of the United Alloy Steel Corp. at Canton, Ohio, as sales and metallurgical engineer, has been transferred to the company's New York office, 1626 Pershing Square Building, taking the place of E. M. Littell.

A. J. Romer Resigns

A. J. Romer has resigned as chief engineer of the Romer Motors Corp., Taunton, Mass., and has also disposed of his interest in the corporation. Mr. Romer plans to become a consulting engineer in New York City, specializing on automotive products and automatic production conveyor systems.

Burnish with Milwaukee Products

Howard J. Burnish, formerly chief engineer of the gas engine works of the Worthington Pump & Machinery Co., is now works manager of Milwaukee Products, Inc.

Foden Manages Branch

Warren B. Foden has resigned as assistant sales manager of the Gabriel Manufacturing Co. to become manager of the Rochester, N. Y., agency of the company.

A. Johannessen on Visit Here

A. Johannessen, manager of the wholesale accessory department of F. Bulow & Co. at Copenhagen, has arrived in this country on a visit. While here he will be located at the foreign department of Johns-Manville, Inc., 292 Madison Avenue, New York City.

OHIO'S CORPORATION TAX LAW IS INVALID

WASHINGTON, Oct. 20—The Ohio law imposing an annual franchise fee upon foreign corporations doing business in that State was declared invalid today by the United States Supreme Court. The decision will affect a large number of automobile accessory, body and tire manufacturing concerns who do business in Ohio but whose corporation is in some other State.

The Air-Way Electric Appliance Corp., with a plant at Toledo, Ohio, resisting the fee payment, brought the test case before the Supreme Court of the United States after losing in the Ohio State Courts in its suit against the State tax officials.

Reeves and Heminway at Meeting

Alfred Reeves, general manager of the National Automobile Chamber of Commerce, and M. L. Heminway, general manager of the Motor & Accessory Manufacturers' Association, are attending the annual convention of the American Trade Association executives at Briarcliff Manor, N. Y. Mr. Reeves is president of the association and Mr. Heminway is chairman of the program committee.

Sam Toback Resigns

Sam S. Toback, one of the best known and most successful automobile merchandisers in the industry, has resigned from the management of the New York branch of the Nordyke & Marmon Co. His successor has not been announced. Mr. Toback has been identified with the industry over a long period of years. He has not announced his plans for the future.

Wheaton With Central Steel

C. C. Wheaton, former advertising and divisional sales manager of the Lancaster Steel Products Corp., Lancaster, Pa., is now engaged in sales promotion work at the Central Steel & Wire Co., Chicago.

Barker with A. L. Whittemore

Fred Barker, Jr., formerly with the J. H. Williams Co., has become associated with A. L. Whittemore of Chicago and will in that association take an active part in the development of the accounts which are handled by the Whittemore company in the Chicago territory, namely, the Ferry Cap & Set Screw Co. of Cleveland, the Vlchek Tool Co. of Cleveland and the Cushman Chuck Co. of New England.

H. H. Kohlsaat Dead; Promoted Race Idea

Prompted by Paris-Bordeaux Contest, He Sponsored Event Here in 1895

NEW YORK, Oct. 18—H. H. Kohlsaat, a prominent newspaper publisher whose name is intimately linked with early automobile history in this country, died in Washington this week.

In 1895, when he was publisher of the Chicago *Times-Herald*, Mr. Kohlsaat at his club one day saw pictures of the Paris-Bordeaux automobile race in a French illustrated journal. He conceived the idea of promoting a similar race in this country and offered a sum of $5,000 as prize money for a race which was to be held in Chicago. An additional sum of $5,000 was set aside by him to cover the expenses of organization.

Engineers Became Interested

Numerous inventors and engineers became interested in "horseless carriages" through this offer, and more than 60 entries were received for the contest, which was held on Thanksgiving Day, 1895, over a 52½-mile course. The race was originally set for July 4, but as practically all of the cars which were entered had not even been designed when the prize offer was made, it was found necessary to postpone the contest three times, first to Labor Day, then to Nov. 2, and finally to Thanksgiving Day. The work of organizing the race was placed in the hands of Frederick U. Adams of the *Times-Herald* staff.

The race was held over a course from Jackson Park on the South Side to Evanston and back, and the distance of 52½ miles was covered by the winner, a Duryea car, in 7 hours actual running time, or about 11 hours total time. The only other car to complete the trip was a Benz entered by H. Muller & Co.

The conditions under which the contest was held were rather severe, for there was about 6 inches of snow on the ground, which through cold weather and traffic and a "hands off" policy of the street cleaning department had been converted into a sort of granular condition, thereby greatly increasing the resistance to motion.

Started Automobile Development

This contest really was the starting point of automobile development in this country, and Mr. Kohlsaat deserves great credit for having conceived the idea and seen it through, by furnishing the prize money and bearing the expenses of organization.

KELLY TIRE PRICES CUT

NEW YORK, Oct. 21—Following the lead of Firestone, Goodrich, U. S. Rubber and B. F. Goodrich, the Kelly-Springfield Tire Co. has reduced prices of straight-side pneumatics from 3 to 6 per cent.

Kissel Engine Adds Many New Features

Changes Have Been Made in Design and Also in Methods of Production

HARTFORD, WIS., Oct. 22—A number of changes have been made in the design and methods of production of the Kissel engine. Pressure lubrication has been adopted, the oil under pressure being forced directly to the main, crankpin and camshaft bearings and to the front end drive. The cylinders are now honed.

Lynite pistons and Lynite connecting rods have been adopted. The pistons weigh 15¼ oz. each and are fitted with Teetor Perfect Circle oil regulating rings. The connecting rods weigh 18¾ oz. each without bearings. They are fitted with 0.0015-0.002 in. clearance at the big end bearings and have the piston pins anchored in them.

A cast aluminum oil basin, which is deeper and, therefore, of greater capacity than the old basin, is now fitted, and the design also permits of a better gasket fit between the crankcase and oil base.

A thermostat is now fitted to the cooling system. The water pump is now built as a complete unit, which is connected to the generator shaft by two flexible flanged joints, which makes it more accessible and easier to remove for repacking and repairs.

Tests recently conducted with one of these cars by Col. William G. Wall and Chester S. Ricker at Indianapolis are said to have shown that the car can be driven at between 60 and 70 m.p.h., without perceptible vibration, and that the wear at the bearings is very slight.

Ford Model T Engine Lubrication Improved

DETROIT, Oct. 22—Lubrication of the Ford Model T engine has been improved by an increase in the length of the funnel on the crankcase oil tube from 1½ to 3⅝ in. With the new design the funnel collects approximately twice as much oil for delivery to the front end as the old design. It also is said to give better lubrication on steep inclines and in cold weather.

In the latter case the oil becomes congealed and the flow is slow when the engine is started. The larger amount collected by the new funnel insures oil reaching the front end more quickly. The additional oil collected in the funnel also increases the pressure in the tube and consequently there is less chance of it becoming clogged.

ANNIVERSARY OF FORD BRANCH

MILWAUKEE, Oct. 20—The Milwaukee assembling plant of the Ford Motor Co. is celebrating the tenth anniversary of its establishment in its own building on Prospect Avenue, LaFayette and Kenilworth place. Occasion is provided to review the history of the branch. In ten years the number of employees increased from 94 to 511; the monthly payroll from $10,000 to $75,000; the number of dealers served from 98 to 291, and the output from 700 cars to 4000 cars a month.

Proposed Car Will Use Bournonville's Valve

KOKOMO, IND., Oct. 22—Eugene M. Bournonville, inventor and patentee of the Bournonville Rotary Valve, has announced organization of the Bournonville Rotary Valve Motor Car Co., which he says will produce an automobile equipped with his valve and selling in the $2,000 class. The announcement was made on the occasion of a visit to Kokomo by Mr. Bournonville.

He stated that the new organization is buying machinery and plans to start production in about a year. The location of the plant has not been settled.

F. H. Peterson, vice-president of the Triple Action Spring Co., is president of the Bournonville organization. Mr. Bournonville said that he will not be directly connected with the company, but that he will license it to use his valve.

September Production Amounted to 288,008

WASHINGTON, Oct. 22—The Department of Commerce places September production of passenger cars and motor trucks at 288,008. This compares with 279,061 in August of this year and 327,542 in September, 1923.

Production for all of 1923 and nine months of 1924 is as follows:

Passenger Cars

	1923	1924
January	223,822	287,353
February	254,782	336,371
March	319,789	348,356
April	344,661	337,045
May	350,460	279,455
June	337,442	217,935
July	297,413	237,668
August	314,431	*251,551
September	298,964	257,947
October	335,041	.....
November	284,939	.....
December	275,472	.....

Trucks

	1923	1924
January	19,732	28,925
February	22,173	31,156
March	35,284	34,118
April	38,085	36,158
May	43,730	33,415
June	41,173	*27,884
July	30,692	*25,248
August	30,872	*27,510
September	28,578	30,061
October	30,139	.....
November	28,073	.....
December	27,762	.....

*Revised

ELECTROPLATING CONFERENCE

WASHINGTON, Oct. 22—A conference on electroplating will be held at the Bureau of Standards on Nov. 14 and 15, to which all platers, chemists, superintendents or other factory officials, dealers in platers' supplies and others interested in electroplating have been invited. The conference will deal with research work.

Tire Stocks on Hand Decline in 6 Months

Government Survey Shows That Dealers Averaged 517 Casings October 1

WASHINGTON, Oct. 22—In a survey of the stocks carried by dealers as of a given date, the Department of Commerce finds that on Oct. 1, this year, the dealers of the country had in stock an average of 51.7 casings each, compared with 92.6 casings in stock on April 1, 1924.

The figures are compiled from reports received from 21,801 dealers, who reported 1,127,306 casings in stock, compared with reports from 17,797 dealers on April 1, reporting their stocks at 1,648,993 casings. The figures, of course, are preliminary and do not cover the entire field, but are accurate enough, it is believed, to give some clear indication of the average stocks on hand.

An analysis of the 21,801 reports shows that 23.6 per cent of the dealers had in stock less than 10 casings; 31.5 per cent had from 10 to 25 casings; 22.6 per cent had from 26 to 50; 13.4 per cent, from 51 to 100; 6.1 per cent, from 101 to 200; 1.4 per cent, from 201 to 300; 0.5 per cent, from 301 to 400; 0.6 per cent, from 401 to 1000, and 0.3 per cent, more than 1000 casings.

Other preliminary statistics compiled from the Oct. 1 return show that the dealers had on hand 1,794,246 inner tubes, 23,897 solid tires and 20,643 cushion tires.

It is the plan of the Department to make a semi-annual survey of the stocks of all automobile tires and tubes held by dealers in the United States in order to afford manufacturers an index to the trend of the market.

Falls Admits Insolvency and Files Its Schedules

MILWAUKEE, Oct. 20—Admitting its insolvency, the Falls Motors Corp., Sheboygan Falls, Wis., has filed an answer and complete schedules of assets and liabilities in the Federal Court at Milwaukee. The nominal value of the assets is stated to be $833,950, while liabilities amounting to $710,165 are listed.

The secured liabilities amount to $519,250 and include the claim of $518,750 of the First Wisconsin Trust Co., Milwaukee, for principal and interest in default of the provisions of a trust deed securing a mortgage of $500,000. This default resulted in the original litigation by the trust company a few weeks ago, which was followed by involuntary bankruptcy proceedings by creditors.

The assets include stock in trade of $145,577; real estate, $475,067; machinery, $102,447, and personal property, $77,712, while accounts receivable are $20,045.

Ford's Sales Abroad Surpass All of 1923

Increase in Truck Business Reflects Improved Economic Conditions

DETROIT, Oct. 20—September reports from the managers of the Ford Motor Co.'s foreign branches and associated companies reflect the improving economic situation abroad and show that 1924 is the biggest year the Ford company has yet enjoyed in the foreign field.

From Jan. 1 to Oct. 1, 1924, the sale of Ford products overseas amounted to 138,291 cars and trucks and 10,303 Fordson tractors. These sales are already close to the record for all of last year. The figures do not include the production of the Ford Motor Car Co. of Canada, Ltd., which supplies Ford products to all parts of the British Empire except the British Isles.

Truck Sales Advance

If truck sales are any barometer of economic conditions, the company says, then foreign commerce is coming back rapidly, for the January to October sales have run more than 13,000 ahead of the entire year's record of 1923.

Argentina leads the export field in the purchase of Ford cars, having taken nearly 16,000 since the first of the year, this being a considerable gain over the first three-quarters of last year.

While the revolution in the State of Sao Paulo, Brazil, slowed up business all over the country, the recovery has been very swift, and 1741 Ford units were sold there during September. The Ford plant at Sao Paulo was shut down during the revolution.

The tractor market continues to improve all over the world, and there are few places where substantial gains have not been made. In the Scandinavian countries Fordson tractor sales are more than three times as high as for the whole of last year, the company reports, and in Belgium, Holland and the Near East the record is within a very small margin of being as good. The market in Germany also is improving, and a recent order for 500 Fordsons from that country has just been filled, making a total of 1500 so far this year.

New Plant at Stockholm

The increasing demand for Ford products in Europe has made it necessary to open a new Ford plant at Stockholm, although a year ago all this territory was handled by the Copenhagen plant. A similar situation prevailed in Holland, where Ford business increased so rapidly that the Antwerp plant could no longer take care of it, and Rotterdam got a new Ford factory of its own. Also a branch has recently been established at Santiago, Chili.

In domestic business sales reports show that retail deliveries of Ford cars and trucks in the United States during the month just ended were the largest for September in the history of the company. They exceeded the sales of September a year ago by more than 5000.

CITROEN OUT TO TAKE SCANDINAVIAN MARKET

WASHINGTON, Oct. 21—An active campaign to capture the Scandinavian markets is to be made at once by the French Motor Co. of Denmark, manufacturer of the Citroen motor car, the automotive division of the Department of Commerce is advised by Commercial Attache Harry Sorenson at Copenhagen.

The first step will be the importation into the Copenhagen free port of 600 Citroens, a stock which is considered to be sufficient to cover the domestic and export sales for 10 weeks. At the end of the current year or in the early part of 1925 the French concern purposes to start a branch factory in Copenhagen along the lines of those already established by American firms.

A. A. A. Will Discuss Taxation of Motorists

CHICAGO, Oct. 22—Taxation of motorists will be the principal topic of discussion at the meeting of the directors and executive board of the American Automobile Association, to be held Oct. 30-31 at the Blackstone Hotel. One of the speakers will be Thomas H. McDonald, director of the Bureau of Public Roads. In discussing the question of taxing motorists, Charles M. Hayes, a member of the A. A. A. executive board and president of the Chicago Motor Club, said:

"Some sound and equitable system of taxation will be recommended by the national body. The motorist in some States like Arkansas, where car owners are not organized, is forced to pay outrageous taxes. The Arkansas motorist pays 12½ cents per horsepower, plus 55 cents per 100 lb. of weight, plus 4 cents per gallon on gasoline, plus 10 cents per gallon on oil. Yes, and there is a personal property tax on top of that."

Bordino Coming Here with Grand Prix Car

PARIS, Oct. 10 (*by mail*)—Taking with him a straight eight supercharged Fiat, Pietro Bordino will sail from Genoa to New York this month to spend the winter on the Californian tracks. The car is the 122 cu. in. racer which Bordino drove in the French Grand Prix at Lyons, this year. It is understood that the Italian has made arrangements to run in 10 races before returning home in the spring.

California Proposes "High Speed" Roads

Association Offers Plan to Take Care of Through Traffic Between Cities

SAN FRANCISCO, Oct. 23—A new plan for handling through traffic between cities has been offered by the California State Automobile Association. This plan contemplates the building of "high speed" highways, over which a maximum speed of 50 m.p.h. and a minimum speed of 45 m.p.h. will be the rule.

Motor dealers in particular are enthusiastic concerning the plan, as one of the main factors in holding back motor sales in the cities of California has been the congestion of traffic in and out of these sections. These dealers have been contending that if they could show prospective buyers that ready access to the country from the city is possible, sales would be materially increased.

The proposed highways would have their terminations and entrances at the outskirts of the cities. As nearly a straight line as possible would be secured for the right of way from one city to another. The highway would be from 75 to 100 feet in width, inclosed its entire length, except at exits and entrances, by wire fencing to provide against trespassers. On both sides and outside the wire fence roads would be built for local traffic.

Provision for Leaving Road

At intervals of 10 to 15 miles entrance to the speed highway would be provided from the local roads. These intersections would be constructed so that through traffic could continue at uninterrupted speed. A gradual widening of the road at the point where intersections were built would enable the motorist desiring to leave the speedway to leave it without disturbing the other cars.

Crossings will be eliminated entirely by building cross roads either under or over the speed highway. Although this would considerably increase the initial expense, the association considers that uninterrupted speed is the essential accomplishment of the project.

State ownership of the land on which the high speed highways are to be built is advocated. The policy of building highways over land on which the State has merely easement rights is fundamentally wrong and would be particularly so in this case, the association claims.

Preparations are now being made to submit a bill to the Legislature in December to increase the gasoline tax from its present rate of 2 cents a gallon to 4 cents a gallon. Such an increase would make possible the construction of probably two high speed highways in the State.

Jordan Earns $4.72 Share in 9 Months

Sales in Period Reported at $9,215,508 and Net Profit Placed at $658,444

CLEVELAND, Oct. 21—Jordan Motor Car Co. reports sales for the nine months ended Sept. 30 of $9,215,508 and profits after charges, but before Federal taxes of $658,444. This is equivalent after preferred dividend to $4.72 a share on the 126,000 shares of no par value common outstanding.

The balance sheet as of Sept. 30 shows quick assets of $2,399,389 and current liabilities of $716,548, leaving net working capital of $1,682,841, as compared with net working capital of $984,505 as of Dec. 31, 1923. There are no bank loans or other indebtedness and the company has not borrowed any money during the past year.

According to the statement for the third quarter, dividends for the last half of the year were practically earned during the three months' period.

Commenting on third quarter earnings, President E. S. Jordan says: "Earnings for the third quarter indicate an even more favorable last quarter in view of the fact that during July the Jordan factory was engaged in organizing for the production of the Great Line Eight, therefore the earnings for the third quarter really represent the profit for two months with the deduction of the cost of bringing out the new car."

It is reported that sales by dealers are about 60 days ahead of factory output.

Fedders Will Bring Out New Type of Piston Ring

BUFFALO, Oct. 20—Fedders Manufacturing Co. is soon to bring out a new type of piston ring designed by George Weidley, well known automotive engineer and engine builder, who will have charge of production. The trade name will be Bronseal and the new ring will be offered for equipment and replacement sale.

The ring is made of rolled phosphor bronze in a single width of 1/16 in., two, three or more rings being placed in the same groove. Thus the gap in one ring is obturated by the gap in one or more adjacent rings and gap leakage is practically done away with.

For the material of the rings, phosphor bronze, it is claimed that it has a much higher heat conductivity and better bearing properties than the cast iron usually employed for piston rings. Moreover, the rings are unbreakable.

The higher heat conductivity is of importance because it has been found by test that most of the heat absorbed from the burning gases by the piston head is conducted to the cylinder wall through the piston rings, and better bearing qualities would tend to reduce cylinder wear. It is claimed for these rings that they perform the functions of an oil ring and no special oil ring is required.

Sales and advertising of the new ring will be under the direction of Paul R. Acton, who has resigned as sales manager of the No-Leak-O Piston Ring Co. to join the Fedders organization.

Maxwell Net Earnings in Quarter, $1,831,653

DETROIT, Oct. 22—Maxwell Motor Corp. reports net earnings for the third quarter of the year at $1,831,653 before Federal taxes which is equal to $2.39 a share on the outstanding 611,412 shares of no par Class B stock, after allowing for Class A dividends. Net earnings before Federal taxes in the first six months of the year were $464,440 which is equal to $2.54 a share on the 182,528 shares of Class A stock.

Combined earnings for the nine months were $2,296,093 before Federal taxes, equal, after allowing for Class A dividends, to $1.96 a share on the Class B stock. Due to heavy charge-offs in connection with the introduction of the Chrysler car, the corporation in the first six months failed to earn the dividend requirements on the A shares, but since then monthly earnings have increased steadily. The total for July was $609,869, for August $471,659 and for September $750,112.

In September, sales of Chrysler and Maxwell cars amounted to $7,907,000 and for the first nine months were $58,989,000.

American Chain Wins Three Patent Actions

GRAND RAPIDS, MICH., Oct. 22—Judge Clarence W. Sessions in the United States District Court for the Western District of Michigan has dismissed suits brought by the Stewart-Warner Speedometer Corp. against the Wolverine Bumper & Specialty Co. and the New Era Spring & Specialty Co., charging infringement of Whittington patent No. 1,447,703 owned by Stewart-Warner. The court held the Whittington patent invalid for want of patentable invention. The defense was handled by the American Chain Co. on behalf of the two defendant companies as its licensees under the Hoover-Fageol patents.

A suit brought by the Automotive Products Co., owned by Stewart-Warner, against the Wolverine Bumper & Specialty Co. claiming that it held exclusive license under two Fageol patents Nos. 1,329,517 and 1,427,275 and that the Wolverine company infringed, has also been dismissed by the court. Judge Sessions ruled that the license with Automotive Products had been terminated and that all rights in the patents were vested in the American Chain Co. and Rollis B. Fageol, who had been permitted by the court to become defendants to the action.

FINANCIAL NOTES

Stewart Warner Speedometer Corp. for the quarter ended Sept. 30 shows net profit of $652,973 after depreciation and Federal taxes. This is equivalent to $1.37 a share earned on 474,976 shares of no par stock and compares with $512,850 or $1.08 a share in the preceding quarter and $1,608,648 or $3.39 a share after taxes in the third quarter of 1923. Net profit for the first nine months of 1924 aggregated $2,662,523 or $5.61 a share compared with $5,547,994 or $11.72 a share in the same period of 1923. The directors of the corporation have declared the regular quarterly dividend of $1.25 payable Nov. 15 to stock of record, Oct. 31.

American Bosch Magneto Corp. for the nine months ended Sept. 30 reports earnings of $125,000 after all charges including depreciation of $151,500. The operating profit for the full year of 1923 before adjustment was $148,711 and the net after adjustments was $94,075, the equivalent of 97 cents a share on the 96,000 shares of capital stock. In the last six months the company has reduced its inventory by $512,000 and its current liabilities by $815,000 and at the same time reduced its debt by $127,000 and increased its cash by $27,000.

Russell Motor Car Co., Toronto, Ont., reports net earnings for the year ended July 31 of $92,837, compared with $90,551 in the previous year. Of this total $84,000 was absorbed by preferred dividends. The balance sheet shows cash, securities and accounts receivable of $731,398 as against $217,765 in the year before. The liabilities have been reduced from $49,876 to $3,426.

Western Coil & Electric Co. of Racine, Wis., has effected a material increase in its capitalization to meet the enhanced value of the business and to accommodate expansion made necessary by its growth. The capital of $50,000 is changed so that there will be $50,000 of 8 per cent cumulative preferred stock and 3000 shares of common stock without par value.

Moon Motor Car Co. is reported to have earned its year's dividend of $3 a share to date. The company is expected to earn slightly better than $4 a share for the full year, compared with $4.65 earned in 1923 and $5.01 in 1922. The company is said to have no bank loans and has large cash with substantial working capital.

Ford Motor of Canada, Ltd., is not contemplating to issue new stock at par to finance its new development in Australia, according to Wallace R. Campbell, general manager. The financing is already arranged for, Mr. Campbell says, Ford Motor of Canada furnishing the capital.

McCord Radiator & Manufacturing Co. reports net income of $654,983 for the nine months ended Sept. 30, after all charges and Federal taxes.

J. G. Brill & Co. has declared the regular quarterly dividend of 1¾ per cent on the preferred stock, payable Nov. 1 to stock of record Oct. 24.

Hood Rubber Co. has declared the regular quarterly dividend of $1.75 on the preferred stock, payable Nov. 1 to stock of record Oct. 20.

Pyrene Manufacturing Co. has declared the regular quarterly dividend of 2½ per cent payable Nov. 1 to stock of record Oct. 21.

Wright Aeronautical Corp. has declared the regular dividend of 25 cents a share payable Nov. 29 to stock of record Nov. 14.

Martin-Parry Corp. has declared a quarterly dividend of $1 a share, payable Dec. 1 to stock of record Nov. 15.

FORD TO REOPEN PLANT

LONDON, ONT., Oct. 22—Ford Motor Co. of Canada plans to reopen its plant in this city which was closed several months ago. At that time the machinery was shipped to South Africa and the buildings were offered for sale. The plant is to be enlarged and another tract of land in East London is being secured for an addition to the factory.

Employment Varies in Output Centers

Indiana Putting on More Men—Other Lines Absorb Michigan Surplus Labor

Drop in Detroit Employment

DETROIT, Oct. 20—Employment in the industrial plants in Detroit last week declined 599, as compared with 1046 in the week before. Total employment reported by the Employers' Association is 195,317 as against 214,022 for the corresponding week of last year.

WASHINGTON, Oct. 23—Employment continues to gather momentum in the automotive industry generally, although there are still a number of instances where part-time schedules are the order of the day, it is disclosed here in the October Industrial Employment Information Bulletin issued by the United States Employment Service.

In Indiana the general report is made that the automobile industry is picking up in employment, re-employing a number of men, but the general Michigan report, a significant one, says "some curtailment of operations occurred in the automobile industry, but most of the released workers have been absorbed in other lines."

Conditions in Cities

Following are specific reports from the principal automobile cities as regards employment:

Buffalo: A decided gain is evident in the automotive group.

Syracuse: Automobile plants, usually employing 2900 workers, and two steel plants, employing 1500 continue operating on part-time schedules. However, the outlook in these lines is encouraging.

Indianapolis: Some excess labor is apparent in the automotive industry.

South Bend: Large automobile plant is working near capacity.

Kokomo: All industries with the exception of the automobile plants are adding to their forces gradually.

Muncie: Automobile industries are operating only part time and a surplus of these workers exists.

Flint: Many of the automobile plants are operating on a much curtailed basis.

Detroit: There is a surplus of labor, particularly of automobile workers.

Lansing: The automobile plants here are operating only part time, affecting some 5000 men.

Jackson: A surplus of workers in the automobile industry exists here.

Saginaw: A large motor plant is closed, affecting 1100 men.

Cleveland: A large automobile body plant is reopening some departments and there was about a 5 per cent increase in employment in automobile plants in Cleveland the past month.

Cincinnati: The automobile industry, which has been running at about 60 per cent capacity, is now running at 75 per cent.

Toledo: A surplus of automobile mechanics exists.

Employment Better in Milwaukee

MILWAUKEE, Oct. 20—The tire industry is pointed out as one of the bright spots in the manufacturing situation at Milwaukee in the current issue of Business and Financial Comment, the monthly summary of local conditions published by the largest local bank. This speaks of the metal trades in general as finding business quiet.

Employment in Milwaukee made another small gain during the past month, the summary says. Referring to the automotive industry as a whole, it says that "the manufacturers have now modified their production policy so as to relate it more strictly to effective demand. If this policy is maintained, it will be possible for dealers to adopt a rational policy in respect to used cars, greatly to the health and stability of the whole industry."

INDUSTRIAL NOTES

Indiana Manufacturing & Electric Co. of Marion, Ind., manufacturer of automobile mirrors, has acquired 11 acres on the Big 4 railroad in that city on which to erect a modern factory building. The plant is expected to be ready for occupancy by the first of the year. The company has been in existence for a little more than a year and is planning to enlarge its line of automobile accessories. A. E. Case is president and general manager.

Modine Manufacturing Co. of Racine, Wis., manufacturer of radiators for passenger cars, trucks, tractors, etc., has completed a substantial addition to its factory to handle several large contracts to furnish original equipment to passenger car builders. All of the additional capacity is fully occupied from the opening of the extension, and it is believed likely that further enlargement of the factory will be necessary during the coming six months.

Gasoline Price Starts Slight Movement Upward

NEW YORK, Oct. 22—Wholesale prices of gasoline in the mid-continent and northern Pennsylvania fields were advanced slightly yesterday, the increase being the first since the long swing of declining prices set in last spring.

The advance in the mid-continent field is one-half cent a gallon wholesale. Refiners in Pennsylvania advanced their prices one-quarter of a cent a gallon.

CORRECTION

DETROIT, Oct. 22—Through error in the announcement of the appointment of A. R. Glancy as vice-president and assistant general manager of Oakland Motor Car Co., it was stated that the Waukesha Malleable Iron Co. had been discontinued. This division of General Motors Corp. has not been discontinued and is in fact being expanded for increased operation. Mr. Glancy is continuing to operate this property in addition to his work at the Oakland company.

METAL MARKETS

Steel prices and market conditions continue in a state of bewilderment. Automotive consumers are no more puzzled by some of the quotations they hear of than are the producers who frequently wonder whether a competitor meant to cut under their price or whether a misunderstanding of freight rates is responsible for the disparity of quotations.

Market gossip turns largely on the influence which the impending elections may have on the steel industry and business in general, but there is far less uncertainty about the outcome of the impending battle of ballots, uncertain as it is, than there is about the full effect of the passing of the "Pittsburgh plus" price basis.

The extent of the disorder which resulted from this step has taken the whole market by surprise. The Federal Trade Commission intimates that things will right themselves in a short time, and that consumers and smaller producers will be the ones to reap the full benefit when the price structure has been rebuilt on a new basis. Meanwhile, the smaller independents are contesting vigorously any attempt of the larger producers having mills in all producing districts to wean their regular customers from their accustomed source of supply.

Under the cover of absorbing freight charges, prices are being shaded. For all that, these concessions or inducements are narrow in extent. There is no slashing of prices, but there is very much irregularity of quotations. The first step in the search for relief will be a determined effort on the part of Pittsburgh and Youngstown steel mills to secure lower freight rates than those accorded to steel products which at present come under the fifth class.

From the Federal Trade Commission the battle ground will be changed to the Interstate Commerce Commission. With so much confusion in the steel industry, it is little wonder that the trend of demand is also obscured. The general impression is that sheet buying has slightly tapered off, but automotive consumption of strip steel appears to be holding up relatively well. Bookings of the leading interest are believed to run ahead of those of the independents. Steel products salesmen say that selling steel has once more become a he-man's job, what with purchasing agents playing off quotations of one mill against those of another.

Pig Iron.—The fortnight preceding a national election is usually dull in the pig iron market, and the present is no exception. Middle West blast furnace interests believe that once the election is out of the way, the road will be cleared for higher first quarter 1925 prices, and refrain for the present from quoting on deferred deliveries, except when specific tonnages are named.

Aluminum.—Moderate tonnages of aluminum arrived from Norway last week, the bulk consisting of ingots consigned to the sole domestic producer. Only very small lots of fabricated metal products are arriving from the Continent. The market is steady and quiet.

Copper.—Fractional advances in copper prices are attributed to better export demand, but domestic consumers consider this as an indication that the market will continue to rise slowly because the Europeans usually enter the market when they are convinced that prices scratch bottom. Automotive demand for copper and brass products is fair.

Tin.—A more steady tone is in evidence and the wide swings are seemingly over for the present.

Lead.—The lead market's undertone is quite strong. Storage battery makers have been covering their wants freely at lately prevailing levels.

VAIL WATCH IS READY

DETROIT, Oct. 22—Vail Watch Co., formed by E. F. Vail, formerly of the Waltham Watch Co., is now ready to present a special line of clocks for car equipment. The clocks will be made in Switzerland and will be of special design for automobile use, one feature being a dial which indicates when the clock should be rewound.

Calendar

SHOWS

Nov. 9-15—New York, Annual Automobile Salon, Commodore Hotel.

Nov. 9-19—Buenos Aires, Annual Automobile Show, Pabellon de las Rosas, under the auspices of the Automovil Club Argentino.

Nov. 10-15 — Chicago, Annual Show and Convention of the Automotive Equipment Association, Coliseum.

Dec. 1-13—Montevideo, Uruguay —Second Annual Motor Show, under the auspices of the Centro Automovilista del Uruguay, held in buildings of the Asociacion Rural del Uruguay.

Dec. 5-14—Berlin Automobile Show.

Jan. 2-10—New York, National Automobile Show, under the auspices of the National Automobile Chamber of Commerce, Bronx Armory. Open to the public except on Jan. 2 and 3 which are trade days.

Jan. 23-31 — Chicago, National Automobile Show, under the auspices of the National Automobile Chamber of Commerce, Coliseum and First Regiment Armory. Open to the public except on Jan. 23 and 24 which are trade days.

Jan. 25-31 — Chicago, Annual Automobile Salon.

RACES

Nov. 24—Los Angeles.

CONVENTIONS

Nov. 6-8—Chicago, First Convention of the National Standard Parts Association, Hotel La Salle.

Nov. 10-15 — Chicago, Annual Convention and Show of the Automotive Equipment Association, Coliseum.

Nov. 16-22—Chicago, Transportation Show, under the auspices of the Motor Truck Industries, American Exposition Palace.

Nov. 18-19—Joint Service Meeting of the S. A. E. with the N. A. C. C. Cleveland, Hotel Winton.

Nov. 18-20—Akron, Ohio, Annual Convention of the National Tire Dealers Association.

Jan. 5—New York, Convention under the auspices of the National Automobile Dealers Association, Hotel Commodore.

Jan. 5-9—Chicago, Road Show and Convention of the American Road Builders Association.

Jan. 26-29—Chicago, Eighth Annual Convention of the National Automobile Dealers Association, Hotel LaSalle.

S. A. E. MEETINGS

Nov.—Indiana Section, Talk by H. A. Huebotter of the Engineering Experiment Station of Purdue University.

Dec. 11—Indiana Section, Aviation Development, Major E. L. Hoffman; Superchargers, Dr. F. A. Moss.

Dec. 15—Cleveland Section, Development of Clutches, Ernest C. Wemp, Long Manufacturing Co., Old Colony Club, Hotel Cleveland.

Jan. 15—Indiana Section, Lubrication and Crank Case Dilution, W. S. Sparrow of the U. S. Bureau of Standards.

Jan. 19—Cleveland Section, Preparation of Fuel Charges and Detonation, Arthur H. Denison, Weger Motor Co., Old Colony Club, Hotel Cleveland.

Jan. 20-23 — S. A. E. Annual Meeting, Detroit.

Feb.—Indiana Section, Automobile Finishes.

Feb. 16—Cleveland Section, Electrical Instruments and Measuring of Chassis Tests by Means of Them, J. H. Hunt, General Motors Research Corp., Old Colony Club, Hotel Cleveland.

Mar.—Indiana Section, Developments in Transmission.

Mar. 16—Cleveland Section, Road and Riding Ability, Harry Horning, Waukesha Motor Co., Old Colony Club, Hotel Cleveland.

Apr. 9—Indiana Section, Talk by F. E. Hunt, vice-president of the General Motors Research Corp.

Lien vs. Insurance Will Be Discussed

WASHINGTON, Oct. 20—A call is out for a meeting at the end of this week of the Hoover Committee on Insurance and Highway Safety, at which the automotive industry will be represented by several members of the Insurance Committee of the National Automobile Chamber of Commerce, together with James S. Marvin, assistant general manager.

Interest is added to the meeting by the belief that the insurance people not sold on compulsory liability insurance will urge the adoption of a lien law, which they believe will work out more to the satisfaction of everyone concerned than compulsory insurance.

This is the suggestion that came out of the recent meeting in Milwaukee of the National Association of Insurance Agents. At this session the lien law was advocated as a measure that would compel the mortgagee or dealer selling the car to insist that the purchaser procure liability insurance at the time of purchase.

It was pointed out that under this method, when a driver is involved in an accident, the car would be a first lien to satisfy the claim or judgment, the lien being superior to any mortgage or conditional sales agreement where the car is bought on time.

As yet the automobile industry is not sold on this proposition, it is said, but its representatives will be here to listen to the arguments pro and con. It is felt that with a lien law in force dealers would insist that all cars sold on time payments should carry liability insurance as a protection to the dealer in case of accident before the car is paid for.

GRAY & DAVIS INCORPORATED

BOSTON, Oct. 20—Gray & Davis Corp. has filed articles of incorporation with the Massachusetts Commissioner of Corporations, placing its capitalization at $4,490,925, with 898,185 shares of $5 par. The incorporators are: Arthur T. Murray, president; Gustave J. Lang, treasurer, and F. Dewey Everett, clerk. The incorporation is a step in connection with the proposed merger with the American Bosch Magneto Corp.

Motor Trucks and Parts at Bottlers' Exposition

LOUISVILLE, KY., Oct. 21—An exhibit of motor trucks and parts is to be one of the features of the annual exposition of the American Bottlers of Carbonated Beverages, which meets here on Nov. 10 to 14.

The bottled carbonated beverage industry is probably the most motorized of any industry in the country, approximately 75 per cent of its 12,000 members being thus equipped, the association declares.

To date 38 motor and accessory manufacturers have made reservations for the exposition. The association has an annual attendance of approximately 5000 members and allied dealers.

Vehicles and Equipment Seen at Electrical Show

NEW YORK, Oct. 18—The Electrical and Industrial Exposition held at the Grand Central Palace was of interest to the automotive trade principally through the automotive exhibits occupying a considerable part of the second floor. In addition to a number of lines of electric trucks and passenger cars, there were industrial trucks and tractors and various electrical equipment, such as batteries, battery chargers, rheostats, truck body accessories, etc.

The truck exhibits were planned chiefly to bring to the attention of the visitor the economy feature of electric vehicles.

Car Imports Cause Concern in Britain

WASHINGTON, Oct. 22—Increased imports of cars from France and Italy during July, August and September have caused increased anxiety on the part of British manufacturers as to the effects of the withdrawal of the McKenna duties, according to advices received by the Bureau of Foreign and Domestic Commerce from Trade Commissioner Park at London. A continuance of heavy shipments of Continental light cars would be a serious menace to the British domestic light car trade, it is declared.

The outlook for the sale of passenger cars and motor trucks in Great Britain during November and December is characterized by Mr. Park as "slow." It is stated that the automobile season is at an end so far as the home market is concerned.

Local manufacturers have curtailed their forces and production schedules to keep down overhead expenses during the last quarter of the year. A few orders are to be filled, while new orders are few. Price reductions were announced the first two weeks of this month by Morris-Cowley, Morris-Oxford, Armstrong Siddeley, Clyno, Calthorpe, Cubitt and Jowett.

CHEVROLET OUTPUT INCREASED

JANESVILLE, WIS., Oct. 20—The Janesville branch factory of the Chevrolet is on a schedule of 2600 cars in October, compared with 2100 in September. The force numbers somewhat more than 350 men.

RAILROAD BUYS FREIGHT CARS

NEW YORK, Oct. 20—The Great Northern Railroad has purchased a total of 900 automobile cars from the General American Car Co.